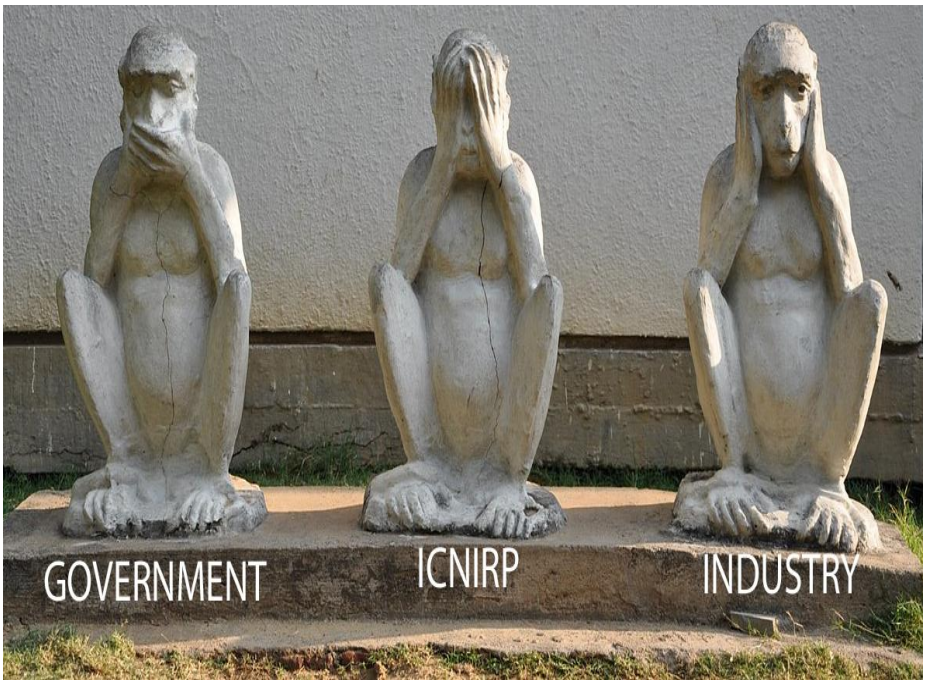
A Conspiracy of Silence

The Hidden Dangers of Mobile Phones, Wi-Fi and 5G:

How to protect yourself from the unspoken dangers of
digital consumer products



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Acknowledgements

Isaac Newton wrote a letter to Robert Hooke in 1676 in which he said, “If I have seen further, it is by standing on the shoulders of giants”.

It would be impossible for me to write this book without sitting on the shoulders of giant luminaries of science, philosophy and culture, both old and new. I pay homage to them in my own simple way throughout this book. Away from all the science and techno-babble is a simple truth, we all learn by observing, watching and aping each other. I have learnt so much simply listening to individuals who either suffer from a medical condition called, EHS, (electro-hyper-sensitivity) or by someone who says to me, since that phone mast was switched on, I now suffer from this or that.

It is we, who bring to life, the ‘fruits of mind’ of individuals such as, Robert I. Becker, Thomas Kuhn, Isaac Newton, Aristotle, Francis Bacon, Descartes and Nikoli Tesla. They all dared to question, “why” and that ball is now in our court.

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Preface

In this preface, I want to go beyond the scope of this book by taking a systems-wide perspective on where I think humanity is heading. The Digital Age of computers, phones and Wi-Fi and its introduction within society is just one part of an unknown script. I am simply interested in showing there is a conspiracy of silence between government, standards-setting bodies and the telecommunication industry. This conspiracy of silence does not extend to academia and it is simply aimed at the general public. Simply put the frequencies of Wi-Fi, mobile phones, tablets, laptops and computers that link to the Internet are carcinogenic. In order for government and industry to be silent on issues of biological safety, they need the acquiescence of the media, academia and large chunks of the scientific establishment. The media rarely ask questions on anything related to consumer safety and the academics voices we hear from, usually "sing for their supper". There are two on-going stories going on, one spoken and the other unspoken. The spoken path tells the saga of The Brave New Digital Age and how everyone partakes of its fruits. The unspoken path of the Brave New Digital Age is difficult to envisage because consumers do not know what the motives and intent of government and industry are and what their end-game is.

Thankfully, actions speak louder than words and it is a simple matter to note who did what and then to connect the dots. This opening section is verbose i.e. 'wordy' and it attempts to paint a picture in which state actors i.e. government scientists, telecom companies say one thing whilst they quietly do something else. It means I have to explain the same term or issue within more than one interpretation. I apologise in advance for it, yet I feel it necessary for us to understand the context and background to everything related to the rollout of mobile phone telephony. In doing so, we become fore-warned, hence fore-armed. I guarantee that when the general public has a full and frank understanding of the nature and uses of microwave radiation, techy-habits will change and many digital goods and products will either be hard-wired or simply given to recycling centres. There are many dedicated and passionate individuals who study the non-thermal adverse biological effects from exposure to microwave radiation, yet they have no seat at the table and their voices are rarely heard. Informed consent is a necessary prerequisite for anyone who uses mobile phones, Wi-Fi and other digital goods. We all need to wise up before the bogeyman who lives around the corner, shows up and its name is 5G!

I used to run an EMF (electromagnetic) Consultancy on the Wirral, Merseyside, UK. I gave it all up because of a lack of government oversight and regulatory zeal policing the technologies used by the telecommunication industries. The sole purpose of this book is to highlight the lack of regulatory accountability and a conspiracy of silence from governments, their health regulators, the telecommunication industries and standards setting organisations, namely the ICNIRP, (International Commission on Non-Ionising Radiation). I focus on the unspoken dangers and hazards associated with exposure from microwave radiation used by mobile phones, Wi-Fi and its next iteration, the world of 5G.

Mobile phone networks use microwave radiation to connect mobile phones to their base servers. In fact, microwave radiation is used in almost 100% of digital consumer goods produced anywhere in the world. It is used in Wi-Fi routers, computers and peripherals, tablets, laptops, DECT phones, smart phones, smart TVs *ad nauseum*. This is a criminal choice of frequencies to use for mobile phone and computer networks. There are decades and decades of clinical research going back to the early radar work of the 1930s that simply says, exposure to microwave radiation causes cancer, physiological, psychological and mental health

problems. In other words, governments are already aware that we must be very careful in our use of microwave frequencies because it can induce all sorts of ailments and sickness. The Russians, termed this broth of adverse biological effects, collectively as *'microwave sickness'*.

Significantly, and I go into much greater detail in later chapters, there are a slew of research studies from the 1930s onwards that biological effects i.e. cancers are systematically ignored by the ICNIRP and its patrons. It is ironic that the military wings of government remain tight-lipped on issues of exposure from microwave radiation. Prior to the 2nd world war, the use of radar had just began and it became a top research priority for governments around the world. This period also coincided with a build-up of tensions between the West and Soviet-bloc countries. The military were tasked with developing the use of radar yet questions of exposure from microwave radiation to military personnel were not well characterised. Before radar could be sanctioned for use, research studies were carried out across the globe to find out what level of exposure, its duration and frequency were capable of causing illness. There was, however, a schism between Western and Soviet-bloc scientists on what to study. Western scientists opted for largely, thermal skin heating effects whilst the Soviet-bloc scientists deemed non-thermal biological effects top priority for research. The era from the 1930s onwards produced a huge trove of research that indicated exposure to microwave radiation produced both thermal effects and non-thermal adverse biological effects – that is clear and incontestable.

If we fast-forward to 2018, the latest research from the American government i.e. the National Toxicology Programme (NTP) rodent cancer study provides "'clear evidence'" that exposure to microwave radiation causes cancer including DNA breakages and lesser adverse biological effects. This research is significant because it was carried out by the US government and its conclusions show direct cause-effect between exposure to microwave radiation and induction of cancers. This research shook the world of oncology, standards-setting organisations and governments. Oddly, most governments, their regulatory bodies and the telecommunication industries still remain tight-lipped and ever so silent on this new, peer-reviewed marvel of scientific truth. The implications of the NTP rodent cancer study show that (a) exposure to microwave radiation causes cancer and (b) radiofrequency radiation between 100 Hz to 300 GHz needs to be re-classified as 'ionising' rather than 'non-ionising and (c) the Precautionary Principle should be enacted in the use of these frequencies whilst further research is carried out. This is especially significant in view of the imminent rollout of even higher spectrum 5G frequencies.

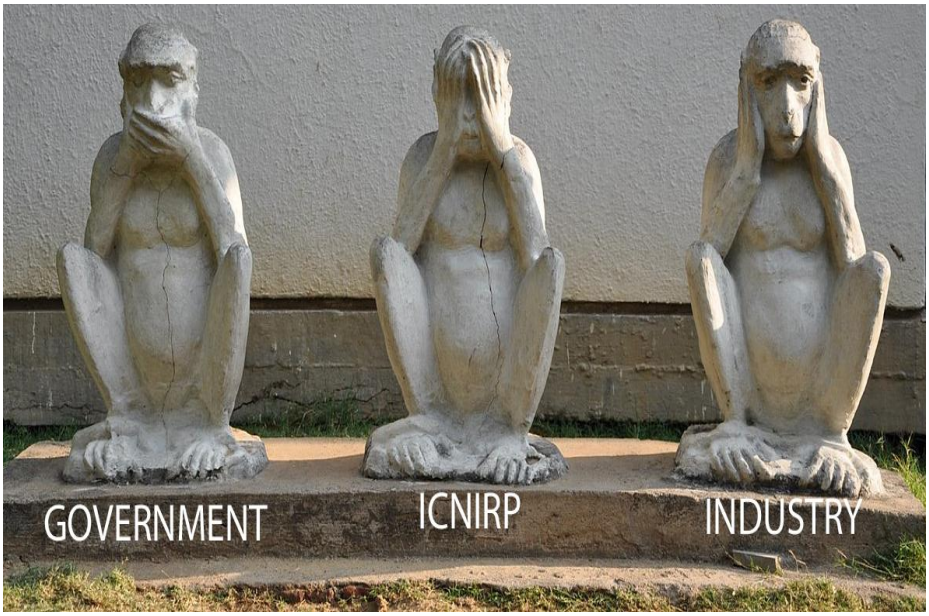
We, human beings have an unusual attitude towards hazards and risks. If we are exposed to a technology or substance that kills outright, we deem it dangerous and its use is quickly outlawed. We define that substance or technology as an environmental pollutant and legislate against its use. On the other hand, if we use a technology or substance that affects some before others over a long period of time, we continue to keep calm and carry on. This is our experience with cigarettes and cancer, DDT with cancer and Agent Orange (a defoliant used in the Vietnam War) and cancer. All these substances were introduced into society as government-sponsored soundbites i.e. 'perfectly safe" or because they provided a 'social good'. All of these environmental pollutants took their toll on populations and became 'silent killers'. We are now in that same situation regarding our use of microwave radiation because the data is coming in thick and fast that exposure to microwave radiation is affecting humans, birds, animals and the natural environment in not-so-nice ways.

The body responsible for setting maximum levels of exposure from microwave radiation is the ICNIRP. They give advice to governments on safe levels of exposure to microwave radiation yet, the safety advice is based on thermal skin heating effects. Non-thermal adverse biological effects are ignored in spite of the accumulated evidence of harm since the rollout of radar in the early 1930s. I simply want to know *why*, biological effects do not exist for the ICNIRP, government, its health regulators and the telecommunication industries. Something smells and we need to find out what it is. There is a conspiracy of silence regarding our safety in relation to exposure from microwave radiation. I call it a *conspiracy* against mankind because it involves the very bodies and organisations we think are protecting our health, such as the ICNIRP, governments, media, academia and the telecommunication industries. For example, incidences of brain tumours (malignant gliomas) are going through the roof in many parts of the world. Other studies show the relatively rare, heart schwannoma cancers are now increasing. There are numerous reports of individuals suffering from EHS, (electro-hyper-sensitivity) having no option but to live well away from any modern telecommunication networks or anyone using a mobile phone or tablet. Rates of depression, self-harm and suicide, particularly amongst the young and especially those living on university campuses are on the increase. Many individuals suffer from all sorts of odd ailments including tinnitus and they can feel "currents" running up and down their arms and within their mouths. Sperm counts in males have decreased in all countries using mobile phones whilst breast and renal cancer rates are on the increase. Our natural environment is systematically being wiped of insects, especially pollinating species such as bees. The common denominator in all of this is the introduction and use of microwave radiation as a frequency to connect everything to anything and anything to everyone.

The unfortunate and inconvenient truth for anyone using a mobile phone and other digital products that comprise the Digital Age is a lack of safety testing. None of the above diseases and ailments that are listed above are considered a safety issue because governments, their health regulators and the ICNIRP do not assess safety using non-thermal biological effects when setting safety policy. In other words and from the very early days of the Digital Age of the mid-1980s, any biological effects from exposure to microwave radiation that mention cancer, stress, anxiety, depression, reduced sperm count are systematically ignored.

There are millions of individuals in many countries who enjoy the seamless integration of their digital products that allow them to communicate with each other and across social media. They love the functionality of Wi-Fi, smart-TVs, smart meters and mobile phones. The media encourage all of us to buy the latest digital gadgets and everything appears amazing and rosy in the garden. None of these actors, however, mention anything about safety. The safety data of digital gadgets is called SARS (specific absorption rate) and it is hidden in the small print of the manual. Few people even realise that the same frequencies they use to cook food in microwave ovens are the very same frequencies used by mobile phones. Think about what happens to your brain when you press that phone to the side of your head. There is a complete disconnect in information in relation to safety between governments and consumers. I want to know *why*, this happened in the first place and secondly, *why* it is still allowed to happen today. Despite all of these ailments affecting various sectors of our populations, especially our young people, governments, their health regulators and the telecommunications industry remain tight-lipped on anything related to safety. I call these actors, *the three monkey tricksters* who practice the mantra of "*see, do and hear no evil"*. The ICNIRP 'see' no evil, governments 'speak' no evil and the telecommunication industries, 'hear' no evil.

The three monkey trickster strategy of non-engagement show (a) they do not mention non-thermal biological effects and (b) these studies form no part of their safety reviews. A simple question raises its heads, why does the ICNIRP routinely ignore non-thermal biological effects research? I answer this important question later and the answers will shock you to the core.



As a scientist I am used to the push and shove of scientific discussion, debate and discourse. At the end of all that, the research data usually illustrate cause and effect and one is able to separate fact from fiction. If the data is not too strong, at best, we can only say there is an association between α and β and further research is required. We now live in an age of what is called 'consensus science' and it was first championed by the IPPC (Inter-governmental Panel on Climate Change) and of course, the BBC who is the UK state broadcaster. If you ignore all the fear-porn generated by these organisations, what you are left with is an empty slogan that says "97% of climate scientists agree that carbon dioxide is responsible for climate change. The general public do not undress this type of 'language' and most walk away from this discussion with the notion that the science around climate change is finally settled. That being the case, we must do something about it to "*save the planet"*. Clearly, *consensus science* is nothing to do with science and all of it was contrived, arguably, from an Alice in Wonderland script. Nonetheless, this is what governments and the mainstream media, try their hardest for us to accept.

I am an old-fashioned geezer and real science has been my bread and butter existence for much of my adult life. I have no time for consensus science or science which cannot be 'falsified'. In a nutshell, the so-called science of the ICNIRP and its government patrons is, non-scientific or simply a script.

In that sense, I understand data, how to use it but more importantly, how to collect and interpret it. There is also an age-old philosophy within the Scientific Method, it simply says that good science is falsifiable and bad science simply supports your point of view, or worse, an agenda. An example of a falsifiable hypothesis is to say that "I have observed thousands of swans all over this land for the past 60 years. Therefore, my truth states, "all swans are white". This 'truth' is fine until someone from another land gifts you with a black swan. The appearance of the black swan 'falsified' the statement that all swans are white. These types of problems became my favourite topics within the history and philosophy of science module as a

'wannabe' scientist back in the day. I learnt all about Descartes, Bacon, Aristotle and the problems of deduction and induction within the Scientific Method.

You may think a professional scientist i.e. a scientific researcher spends time understanding and working within the Scientific Method? You are probably wrong in that assumption because not all universities who offer science courses, bother with the innards of the Scientific Method and even fewer universities actually have anything related to teachings of, The History & Philosophy of Science. What I did **not** come across in my studies of Science was anything that described the current state of affairs between the ICNIRP and the government in its interpretation of the Scientific Method.

The ICNIRP-scientific argument simply says, "I am not going to consider your hypothesis that exposure to microwave radiation causes non-thermal biological effects because what you propose is impossible. They simply take note of new non-thermal adverse biological effects research and bin, ignore or attempt to induce 'noise' into its conclusions. Without falsifiable proof to the contrary, the ICNIRP simply state that "radiofrequency radiation from 100 kHz to 300 GHz is non-ionising". In the real world, Science does not work that way, because sooner or later, someone is going to ask the ICNIRP to prove that RFR from 100 Hz to 300 GHz are non-ionising i.e. to falsify its own hypothesis by carrying out research that looks specifically for cancer induction and DNA-breakages. If they are unable to do this, they can ask the NTP and Ramazzini study leaders how to do it.

Throughout the history of science, apart from climate science, no-one works this way. The scientific review process within the ICNIRP has two levels, a 25-strong project leader group who collate study review material for its 14 member panel. They meet, discuss and finalise safety advice given to governments across the globe. This weird and contorted scientific mind-set was first etched into the annals of the ICNIRP by its founder, Michael Repacholi in 1992. Anything the ICNIRP project group comes up with for review by the 14 member panel is by definition i.e. 'non-ionising' gives them the excuse to ignore biological effects. In other words, the ICNIRP review process itself is a 'self-referencing' talking shop.

In other words, the safety paradigm i.e. non-ionising paradigm currently used by the ICNIRP is not *falsifiable* and by definition, *non-scientific or nonsensical*. The ICNIRP believe that exposure to microwave radiation results *purely* in skin heating effects, more commonly known as 'thermal effects'. They do this by exposing a plastic head mannequin known as S.A.M. (Specific Anthropomorphic Mannequin) to different intensities of microwave radiation and measuring the resultant rate of heat increase in the dummy! Any other type of scientific research is simply ignored. That is why I define the ICNIRP safety model as *'self-referencing and non-scientific'*. The current ICNIRP research model is simply not good enough.

The Digital Age has been with us from an evolutionary perspective for less than a heart-beat, yet it is clear that in the space of just 30 years, the adoption of this technology is responsible and/or associated with many adverse biological effects. The telecommunication's non-thermal biological effects 'chickens' are rapidly coming home to roost. The current wide-scale use of microwave frequencies range from 900 MHz to 5 GHz. These microwave frequencies encapsulate 2G, 3G up to 4G mobile phone technologies. The next developmental phase of the Digital Age is the introduction of 5G (G = generation) frequencies from about 15 GHz – 300 GHz. When 5G kicks in, many more individuals will suffer adverse biological effects simply because the small wavelength of these frequencies pack a hefty, biologically-damaging punch. Just how bad these effects will be is difficult to 'guess/timate' because once again, no safety

testing has been carried out at these frequencies by the ICNIRP. Based on what I know of exposure to microwave radiation, particularly at frequencies that might be used for 5G, it will not be pretty for consumers and non-thermal adverse biological effects will kick in almost straight way for many individuals. The frequencies of 5G, by definition have millimetre wavelengths with consequent extremely high power density fluxes of electromagnetic fields. These fields will be damaging to our biology.

Is it time to re-visit the concept of non-ionising radiation from 100 kHz to 300 GHz

The ICNIRP argue that EMFs (electromagnetic frequencies) up to 300 GHz are non-ionising. The ICNIRP give exposure level advice to governments and regulators for frequencies between 100 kHz to 300 GHz. These frequencies also include the soon-to-be released 5G technologies. Despite no safety testing of any kind, the advice they give for 2G, 3G and 4G will be exactly the same for 5G. They argue that non-ionising radiation is incapable of kicking electrons out of orbit and breaking molecular bonds.

I also suspect that due to the poor propagation characteristics of microwave radiation between 15 GHz – 300 GHz, the ICNIRP will strive for even greater transmit powers. Either that or there will be lots more high power EIRP (effective isotropic radiated power) antenna arrays camouflaged into the urban landscaper i.e. lamp posts, road signage, traffic lights, buses, cars, vans, trucks and literally anything that can closely follow a human being as we go about our business. Perhaps, that is the sole reason for the Internet of Things in our homes, offices and workplaces. What other sensible reason could you give to anyone in order to convince someone to put a radio transmitter capable of two-way reception and transmission of radio signals in their fridge or front door?

Based on historical data from the 1930s onwards, particularly the thousands upon thousands of latter peer-review scientific research carried out within the past 25 years that non-thermal biological effects are evident from exposure to microwave radiation, it is now time to (a) enact the Precautionary Principle by re-classifying radiofrequency radiation as ionising. Based on the ICNIRP's remit of offering safety advice to governments on frequencies between 100 kHz up to 300 GHz, all these bands should be re-classified as *'Class 1 cancer-killers'*. These bands of frequencies should carry the same moniker as the radioactive actinides, plutonium^{-238} and americium^{-241} i.e. Class 1, ionising.

We should be precautionary in relation to any RFR (radiofrequency radiation) radiation up to a frequency of 300 GHz. In other words, we do not need an acceptably high burden of scientific proof that includes the precise elucidation of cause-effect. We simply need to show that exposure to microwave radiation causes cancer. In doing so, we must be mindful of population variability, probability and screen out as best we can, any genetic or environmental variables out of our research question equation. That is not rocket science, it is basic science. That is precisely what the NTP rodent cancer study achieved yet, its dissemination and implications of harm to consumers has largely been lost due to 'noise studies' from the ICNIRP and its patrons.

From a philosophical perspective, I simply invite the reader to jump down the rabbit hole because nothing is what it seems. We are all familiar with what politicians say and what they do. They say things to get into power and quietly walk away from doing what they said they would do once in power! That is widespread and perfectly normal behaviour for 99.99% of politicians. What is more difficult to explain is the ways in which large sectors of society i.e. industry, media, civil servants etc. support a state narrative that makes little common, never

mind scientific sense. Therefore, in order to tease apart what is actually going on underneath the hood, it is best to put aside, notions that governments are here to protect and look after our best interests. In succeeding chapters of this book I scratch the underbellies of government and the ICNIRP to illustrate how they work together and support each other in the face of some very serious science of harm studies. Significantly, I want to know *why* they subvert the workings of the scientific method, *why* they ignore what is plainly in their face and *why* do they carry on as if everything is perfectly normal.

Simply put, as we tumble deeper down the rabbit-hole, it will become clear that we live in an electromagnetic prison with no bars, windows, doors or warders. It was all initiated into being by the very political parties and institutions we voted into power. They promised us a better life and to look after our best interests.

As study after study confirm the carcinogenic nature of exposure to microwave radiation, the politicians whistle in the dark, look the other way, bury their heads in the sand and feverishly follow a script of silence. The media break that silence only in times of release of a 'controversial' study that includes 'brain tumours and mobile phones in the same sentence! I call the rollout of the Digital Age a script because in every country that champion the ICNIRP safety advice, they all respond to safety in a 'template' or programmed way. All of it is contrived and we need to get to the bottom of it and give it all a good shake. By the end of this book, I am pretty sure that you will agree, the ICNIRP *has no clothes* and quite simply, has to go.

I deem it necessary to give context and background to what is currently playing out within our scientific and political worlds. I also want to make clear that we must understand that Science itself is more than a 'noble pursuit'. Science is staffed by individuals who grew up within the mores, traditions and cultures of where they were born. In that sense, Science is far from objective yet, if the Scientific Method is followed, there is a good chance that not only can we ask the right questions, we can also come up with the right answers. We must take our power back by piercing the wall of silence from our three monkey tricksters. The public, who use these devices must reach a state of informed consent. The reality is this, if we allow the telecom script to fester and continue, all of us will continue to be bombarded with microwave radiation from many different sources, including later iterations of these technologies. The bogey man under the bed is of course, 5G.

Introduction:

We live in an age of 'double-speak' and 'half-truths'. On the one hand, headlines encourage us to download films from the Internet in 6 seconds! They also persuade us to fill our houses with Wi-Fi-enabled surveillance equipment that gives us the ability to look inside our fridge as we travel home or show us who is knocking on the door whilst we are 6000 miles away on holiday! On the other hand, we rarely engage in conversations about the safety of these technologies and few people are even aware of the frequency of operation of their digital toys.

Long story short, we put mobile phones next to our head that use the same band of frequencies that effortlessly heats food in microwave ovens. The food is heated from the outside in and the microwave energies pass clean through the food. The inside of a microwave oven has shielding in place to stop that energy from escaping the hood of the cooker. Microwave energies have a very short wavelength and the power flux densities of energy this high up in the spectrum effortlessly heat up foods relatively quickly. This magic heating trick is achieved by increasing the vibratory rate of food molecules. If you leave the food in the oven too long, it comes out gooey. The reason for the gooeyness is the proteins de-nature i.e. the food loses its protein structure and collapses and enfolds within itself. When that happens, the nutritional value of that food decreases. Mobile phones and microwave ovens use similar frequencies of about 2.4 GHz. From the perspective of a passing microwave, it does not care a jot whether it heats up food or brain tissue.
Just around the corner lies the spectre of 5G. The 'G' in 5G stands for 5th generation or iteration of telecommunication devices using microwave radiation. Some 5G frequencies, especially the mm (millimetre) wavelengths pack a big punch. The silent news is that governments, their regulatory agencies and the telecommunications industries have not conducted one single, solitary safety study – nada, zilch!! In the same breath, they beg us to embrace the dizzying ultra-fast download speeds of 5G communications and promise us a nirvana of 'smart cities', 'smart' electric cars and a joined up wonderland of consumer products that will blow our little cotton socks off – life is very strange indeed!

Humanity is approaching the apex of its technological evolution as we embrace the nuances of supercomputers, CERN-derived atom-splitting experiments, genetic editing, implantable microchips, digital currencies, digital partners, digital jobs and metaverse realities. No-one really talks about the dark sides of our Digital Age with its assault on ours senses, particularly our young. Step back and watch youngsters as they engage with their digital platforms, especially gaming addicts, those living their lives through social media platforms and those forced to switch from making things with their hands to staring into computers all day. Go to any high street, count 30 individuals walking on your side and street and count how many have a mobile phone in their hands. I often do this whilst I pass time waiting for my missus or kids. Stand outside a school entrance and watch the young children as they leave school for home. They reach for their phones as a matter of programmed urgency.

Peeling back the layers of Control:

Life today is very different to what it was, a mere 30 years ago. Mankind in a very large sense, finds itself frozen in the headlights of the on-coming Digital Age. Arguably, this technology is hurtling us towards a brutish marriage of man and machine. If we allow this to happen, it will change everything human about us. Products of the Digital Age i.e. mobile phones, computers and tablets have the power to addict, 'nudge', shape and manipulate our societal mores, customs and traditions. Significantly, Digital Age products have the power to manipulate and shift the bounds of our consciousness and psychological moods. In order to understand what is behind the Digital Age we must embrace a systems-wide perspective and not just focus on the use of microwave radiation. We must peer behind the unspoken smokescreens and intent of government and industry to find out exactly what they are up to? What are they hiding from us and who or what is really behind the push for a Digital Age?

That is where we are in terms of covertly-introduced government, industry and technologies. Imagine an onion, the top layer is a technology that provides a public good. The second layer is government, in succeeding layers we find industry and further in, the ICNIRP layer. Each of these layers although opaque, clouded, frosty and foggy are fairly easy to research in terms of aims and objectives because politicians are visible and their actions betray their words and what they say. We continue through other layers of control i.e. media, industry, ICNIRP, family, culture and tradition until we finally reach the innermost layer of the onion. The innermost layers are full of dark energies and nothing can be seen. These layers are closed to scrutiny and intellectual rigour. As we peer into the darkness, however, the darkness dilutes to reveal a room of figures and energies scrambling to get away from the light. I use this metaphor of an onion and its layers of control to simply say that when we ask the right questions, we will eventually receive the correct answers to our questions. All it takes is for us to use a different facet of our consciousness and to ask the question *why*! When that happens, we will understand the Emperor and its patrons, never, ever, had clothes.

This book peels back the layers of the onion that cloak the rationale of government, industry and the ICNIRP. The darkly opaque layers that cloak motive and intent is where I stop. My mission is very simple, shine a light on what is not said, researched or even alluded to in terms of exposure to microwave radiation and biological safety.

Governments:

Politicians and governments are the driving forces in urging everyone to embrace digital technologies. The politicians have been very busy ushering in, the infrastructure of a modern-day communications network for many years. If you look carefully all around you will notice that almost everything within our urban infrastructure and social interaction spheres are being re-shaped, and re-vamped into new dystopian patterns of social behaviour. I include just a few

snippets of behavioural modifiers that are already here or about to be introduced. They all have one variable in common, none of it would be possible without the infrastructure that supports the Digital Age and its use of microwave radiation.

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- smart meters,
- smart motorways,
- smart cities,
- the internet of things,
- electric vehicles,
- digital IDs,
- on-line banking,
- working from home using company computers,
- GP triage appointments by phone or app,
- digital currencies,
- A.I. monitoring and surveillance of every keystroke or conversation we have, including the digital mapping of our friends, family and social networks.
- A.I. trolls who monitor the internet for key word snippets such as 'chem-trails', Bill Gates, mark of the beat etc.
- Social media, particularly forum conversations for anyone opposing the state narrative on say, global warming/climate change or vaccine efficacy for COVID-19

The telecom companies, particularly search engines like Google, coral all our search and internet data into the cloud storage servers where it is, classified and categorised. Some of us use 'smart meters' which tell us how much gas, electricity or water we have used. Some of us use electric vehicles to limit our carbon footprint. Some of us have opted for a microchip in our arm so that we no longer use a credit card or passport when we travel. At some not-too-distant time in the future, our use of electricity will be rationed "for the public good". When we travel on smart motorways, signals fly between our vehicle and various sensors installed along the length of 'smart; motorways. We have not been told yet but these signals include an ignition 'kill switch' and a means to throttle back on the speed of our vehicle, regardless of how hard you push on the pedal. Each time we set foot in a certain section of the nearest 'smart city' we are told to go home because it has not been authorised and currently out of bounds because you do not have the requisite number of points on your social credit profile. Oh, I forgot, if your social credit standing is not high enough, it means you cannot use the supermarkets of choice but you are allowed to shop in corner shops, convenience stores and petrol stations ooops, should that be electric vehicle charging station.

All of these digital goods and services are as a double-edged sword, we see their potential and its dark side remains hidden just below the surface. The final nail in the coffin forcing an ill-fated marriage between man and machine will be the introduction of 5G frequencies concurrent with geo-stationary orbiting satellites. Mobile phones, computers, tablets and laptops will suddenly turn into items of societal control.

Each step of technological advancement towards a Digital Age were introduced into society in little baby steps. Clearly, a well-scripted agenda slowly unfolded. Before the Digital Age could advance, governments had to abolish all analogue transmitters that previously enabled us to watch TV etc. Step by step, analogue TV transmitters were shut down to be quickly followed by digital transmissions. Soon afterwards, smart TVs with HD (high definition) signals became the norm. Regardless of which political party was in power and within a period

of about 40 years, the abandonment of the analogue age was quickly succeeded by the Digital Age in all areas of our lives and it was flawlessly executed.

It is fairly obvious that in order to bring in the Digital Age, governments, its health regulators and the ICNIRP had to keep quiet in relation to any adverse biological effects from exposure to microwave radiation. If word got out that exposure to microwave radiation led to cancers, lowered sperm rates, lowered fecundity rates etc.it would be difficult for governments to achieve their goals. It is clear there is a lot going on under the bonnet of the Digital Age. That is why I deem it important that the context of *why* things happen is just as important as *what* is actually happening.

The world has changed and we with it. Thirty years into the Digital Age and everything today is agonisingly back-to-front, hospitals are the new killing fields of humanity, policemen and women spend more time 'policing' our speech on the Internet than catching criminals. Politicians the world over are busily dismantling our ability to work, cook and fend for ourselves. Universities are hotbeds of cancel culture and almost everyone is hooked into and addicted to their mobile phones and digital toys. The litany of change seems to grow by the day as civil servants refuse to go to work and insist on working at home, doctors no longer see patients face to face and dentists are becoming as rare as hens teeth! That in a few paragraphs describes the dystopian and weird world we live within. Presently, we live in two realities existing cheek by jowl. In one reality, politicians, the media, its chattering classes and industry are into slogans of 'net zero'. 'climate change', 'white privilege', 'LGBT', 'gender identity' 'white privilege' etc. The other reality mirrors the day to day struggles of humanity as we attempt to work, eat, heat and clothe ourselves whilst trying to find out where it all went wrong and most importantly, *why*? If we look at what politicians do rather than what they say, there is a clear transition of power from citizen to state. I simply argue the political script of today is against the interests of the very people who voted these individuals into power.

In other words, when everything is back to front, whom do you trust when you scramble around looking for advice on whether it is safe to live within a 100 m radius of a mobile phone mast? Do you trust government, its regulatory agencies, scientists, academics, the ICNIRP? Ca you trust government scientists and technocrats who tell just one side of the story?

I used to work for the UK Scientific Civil Service and gained experience within several regulatory departments, I understand how policy is agreed, debated and disseminated within government departments prior to it being 'sold' to society. I was part of that machine for years and years. From experience of the civil service and of governments itself. I urge anyone to carry out their own research and trust no-one, especially government-financed 'experts'. Even if you know nothing about anything, it is still your responsibility to see how and why, that technology may affect you, your family and community. Life is begging us to become our own experts and not defer to anyone by giving our power away.

The ICNIRP

It is opportune to peel back another layer of the onion to scratch the underbelly of the ICNIRP. In doing so, we expose a startling truth, the Emperor has no clothes. Significantly, the ICNIRP, (International Commission on Non-Ionising Radiation & Protection) is staffed by a bunch of physicists with no training in human biology nor cancer causation. It is supposedly a NGO (non-government organisation), yet its sources of funding are to say the least, secretive. The ICNIRP exists solely to offer advice to governments around the world on 'safe' levels of exposure to microwave radiation. Governments around the world defer any safety concerns we citizens may have to the ICNIRP. In other words, governments, industry, telecomm giants and their regulatory health agencies use the ICNIRP safety exposure data as (a) a shield against any criticism of harm if citizens question safety and (b) the ICNIRP advice is used by governments as a definitive piece of advice that is supposedly, scientifically and medically valid and (c) acting on ICNIRP advice gives the appearance health regulators are doing their jobs. The advice given by the ICNIRP is based on experimental exposure times of just 6 minutes of microwave radiation to the head of a plastic dummy and errrr, that's it.

This is what ehtrust.com say about the ICNIRP

ICNIRP is short for the International Commission for Non-ionizing Radiation Protection. ICNIRP is an invite only, a small group of just 14 members that has no oversight. It was founded by scientist Michael Repacholi who was funneling industry money though a hospital to fund his EMF activities and is now an industry consultant. Repacholi remains an ICNIRP Emeritus Member.

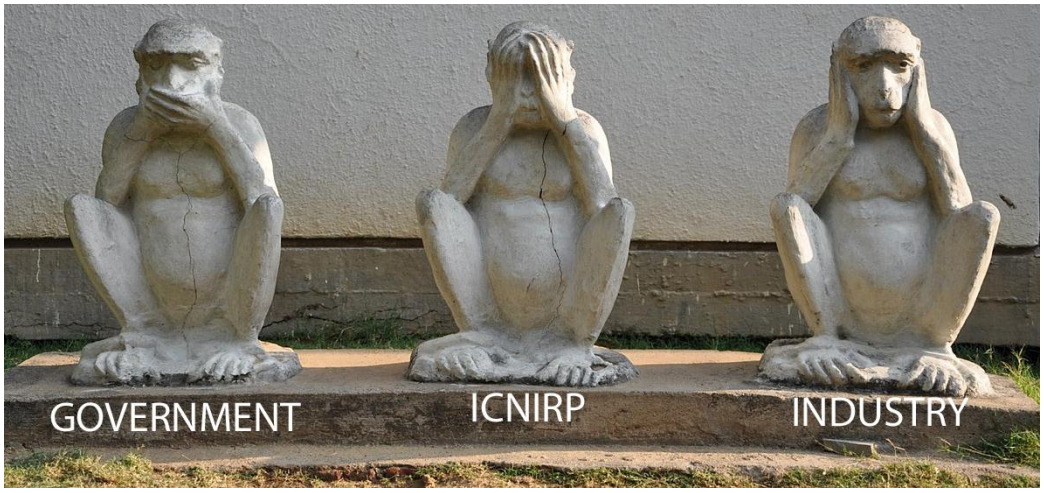
"ICNIRP – with its impressive sounding name – is de-facto the standard setting so called "authority" when it comes to answering the question of "what is safe" regarding wireless and powerline frequency extremely low frequency non-ionizing radiation. It does not represent "consensus" as it is made of just 14 people.

"ICNIRP can, and should, be considered as a "private club" where, members of the new Main Commission are selected by the members of the outgoing Main Commission. It is a self-perpetuating and self-promoting German NGO that is not accountable for its actions at all. Nobody controls it. Nobody supervises it. Nobody checks it for conflicts of interests. Nobody checks it for the scientific accuracy. In all what and how ICNIRP does we, the general public, must rely on the self-assurances, from the ICNIRP, that all is in order." –Dr. Dariuz Leszczynski on ICNIRP"

The advice from the ICNIRP on safety exposure to microwave radiation effectively allows governments to give the green light to industry to market their products. The telecommunication agencies do not question *any* safety-related issues inherent in their products because (a) they are in the business of selling things and (b) they are *also* aware of the unspoken truths and dangers behind human exposure to microwave radiation and (c) they are joined at the hip with the ICNIRP/government regulatory departments. In effect, industry is brick-walled against any danger from consumer fury related to safety or harm. All the mobile phone companies including Apple, Vodaphone and Virgin etc. are also aware and part of this tri-partite agreement to stay silent on matters of biological harm. All these companies have

grown massively and are very fat on the sweat of its subscribers. They certainly would rather chop off their own arm than give consumers a proper dose of safety information. All safety information on any product that uses microwave radiation is difficult to find because it is buried in the small print. Digital consumer products do not carry any health warnings in their advertising or in-store content. Many school teachers do not even understand that if you use a tablet in the wrong way, you exceed the SAR value of that device. This lack of basic safety information is why the majority of the population are unaware of the very real and present dangers of exposure to microwave radiation. I go into these issues much deeper in later chapters.

The three monkey tricksters, the ICNIRP 'see no evil', governments 'speak no evil and telecommunication industries, 'hear no evil'



In effect, the ICNIRP legitimise and give governments the green light to literally go for it. If the truth be told, government, health regulators and the telecommunications industries operate in 'stealth-mode' on any issue of consumer safety. We are in a situation where the telecommunications companies openly install mobile phone masts in school playgrounds, hospitals, police stations, ambulance stations and many other government buildings. Even in our homes, many of us unknowingly install powerful Wi-Fi, routers with built-in antennas, DECT land-line phones and baby monitors that chuck out harmful microwave radiation 24 hours a day, 7 days a week and 365 days each year. In all of this, possibly the worst scenario I can think of is a baby monitor working at microwave frequencies emitting biologically harmful radiation next to baby for every second it is in its cot. Parents reassuringly think they are doing the right thing by using a product that gives them the capability of keeping an eye on their little bundle of joy via camera and microphone whilst it sleeps – if only they knew what is really going on!

The use of digital gadgets are rapidly deepening and widening into almost every facet of our daily lives and you can buy all sorts of microwave-enabled 'smart' gadgets that tell you how many steps you have run, the physiology data whilst running and all this information dumped onto your laptop before you even have breakfast.

That is the context and back story to the birth of technologies of the Digital Age. To all intents and purposes, the Digital Age began in the late 1980s with the widespread introduction of computers into society. This widened and deepened through an evolution of computer connectivity to the Internet using telephone dial-up modems, broadband routers and finally, fibre-optic cable technologies. The common denominator of the Digital Age is the use of microwave frequencies to seamlessly connect all our digital consumer items to the Internet and to each other.

Today, humanity is under the onslaught of this 'silent killer'. Even now with the evidence piling up thick and fast that exposure to microwave radiation is carcinogenic, the 'speak no evil' doctrine holds firm in the minds of those who control the ICNIRP! The real question of course is to ask *why* the telecommunication industries used a known and well characterised carcinogenic band of frequencies to build the foundation for their telecommunication networks and digital products? I partly answer that question in a later chapter.

I write this book in plain language where possible and all scientific terms will be explained and discussed fully in the text. Although EMFs (electromagnetic frequencies) and their myriad effects on our biology are complex topics to understand, there are several terms we need to understand in order to get going. These are, frequency, wavelength and antennas. When we understand those terms, we can make sense of the amount of energy contained in a wavelength, how that signal moves within the environment and how much radiation we are exposed to. I structure the book as much as possible within a timeline of technologies released within society. It is important that we identify all the major players because we need to know what they knew as the Digital Age broadened and deepened. It is time to expose the double-dealings, conflicts of interest and split loyalties between government officials, health regulators and the telecommunications industries as they move as one, against our best well-being.

In **Chapter 1**, I discuss thermal and non-thermal biological safety data studies of individuals exposed to microwave radiation in the early years of radar development. I also discuss why frequencies between 900 MHz and at 2.4 GHz were chosen as the optimum microwave frequencies of use by governments and the telecomm industries.

In **Chapter 2**, I discuss the role of government in easing in the technologies of digital communications via legislation and planning law. I also focus on the role of the ICNIRP, who they are and how they operate. I also look at the conflicts of interests between the ICNIRP and government health regulators across the globe and their professional relationship is very incestuous. I then go on to explain the thermal testing regime using the 'SAM' plastic head model and its numerous flaws. I counter-balance this approach with data from non-thermal biological effects of exposure to microwave radiation. This non-government funded research archive is vast, relatively recent and covers many thousands of peer-review scientific publications yet all of it is ignored by the ICNIRP and its government patrons.

In **Chapter 3**, I briefly discuss transmitting and receiving antennas used in mobile phones and those atop telecommunication masts. I dip into how signals propagate or move around the environment. It is important we understand about signal strength with distance from mobile phone and mobile antenna mast. It is equally important that we understand how 5G signals move around the environment because these very high frequency microwave signals behave very differently to the 900 MHz and 2.4 GHz – 5 GHz signals.

In **Chapter 4** I discuss the NTP (National Toxicology Programme) rodent cancer data. I end this chapter with a look at reproducibility studies that show that (a) sperm levels in males have fallen dramatically since introduction of mobile phones, (b) the sperm itself has lost its mojo to seek out eggs and (c) there are complications in women achieving full term pregnancies. From my perspective, this is a 'silent kill' de-population strategy that needs to be aired, discussed and addressed.

In **Chapter 5**, I discuss the issue of Wi-Fi routers in schools and the explosion of strange and abnormal, physiological, psychological, behavioural and mental well-being issues within children. These issues include autism, ADHD, PDA (pathological demand avoidance), school refusers and those who suffer from stress and anxiety who also never make it to school. I also focus on student suicide clusters, notably in the UK where 15 students from one UK university, committed suicide within a year or so – that is very unusual. I also detail mirror suicide cases from a South Wales town, Bridgend and the USA some years previous when TETRA antennas became operational for the first time. I end this chapter by focussing on the signal strength intensities of microwave radiation in our homes and more importantly, how to cut down on the amount of electrosmog we generate.

In **Chapter 6** I focus on 5G and its implications on our health and well-being. In order to understand 5G, we need a basic understanding of how radio signals this high in frequency propagate within the environment. The signal strength at these frequencies diminish greatly with distance and under particular environmental conditions i.e. when it rains. If we understand the propagation characteristics of these frequencies, we are in a better spot to mitigate exposure.

In **Chapter 7**, I discuss the use of mind control technologies inherent within the pulsed signals of mobile phone frequencies. Everyone is aware of the 'mobile phone zombie' who happily scribble away on their phones whilst crossing busy road junctions. I explain this phenomena in detail and offer a simple solution to mitigate these effects.

In **Chapter 8** This is a good point to discuss electro-hyper-sensitivity because we must understand that due to variability within the population, some are more quickly affected by exposure to microwave radiation than others. Think smokers who smoke 100 cigarettes a day yet live to be 101 years old. His great-grandson smoked 10 per day for two tears and developed lung cancer at age 26 – it's exactly that scenario. In Appendix 1, I follow on from this with a wry look at what happened when one of my clients who is EHS, asked her local MP questions about 5G. Her MP sent our questions to PHE as requested. A simple request turned into a series of frustrating outcomes which I guess is typical when dealing with issues of this type. I end this chapter looking at how exposure to microwave radiation is sterilising the natural environment, particularly pollinating insects such as bees and birds. Much of this discussion has echoes of Rachel Carson's 'Silent Spring', a silent killer is afoot and those responsible look the other way.

In **Chapter 9** I broaden the discussion to encompass the hazards and hidden dangers within ELF EMFs (extremely low frequency electromagnetic frequencies) and how they are generated both inside and outside the home. If you live within 300 metres of an electrical power sub-station or within 500 metres of an electricity pylon, you will need to be aware of this information. I also briefly discuss what happens when solar panels are charging during the day and its effects on our biology. I also discuss the hidden dangers living close to wind turbines.

In **Chapter 10** I focus on strategies and measures we can all do to minimise our risk to exposure from microwave radiation. For some individuals, it will be relatively easy yet for others it will be almost impossible. If we all take small steps together, local solutions can solve global problems. The real point of this book is to raise awareness to the 'silent killer' dark side frequencies and technologies that power the Digital Age. What you decide to do after that point is your decision and yours alone. I am a great believer in '*informed consent'*. Providing you are aware of all the issues using that substance or technology, what you do in response to it is your decision.

I **conclude** this book with a simple plea; find out what is going on and make your own mind up. Do not rely on one source of information and look outside the mainstream media of TV, radio and news-print. The same goes for the alternative media. Identify who you like based on their understanding of the world. Dig deep and get below the surface to find out what is really going on. Fairly soon, you will acquire the ability to filter information. Is it information, disinformation or misinformation? Is this person real or a front for someone or something else? In every situation, truth can be bent, manipulated and strangled. Truth also changes through space and time. My definition of truth is very simple, it has no agenda and nothing to hide. I simply follow the evidence, regardless of where it takes me. The biggest challenge we must all eventually face is to bravely follow the evidence. What results from this is a shift in consciousness and nothing is ever the same again. Life is just like Alice described it, nothing is ever as it seems! In issues of pollution where vested interests are involved and it is difficult to see the wood for the trees, I always ask myself, what would an extra-terrestrial think about the social setup and unwritten contracts between governments and their populace? Impartiality and big doses of objectivity are prerequisites for anyone attempting to get beneath the skin of any environmental issue, especially if it involves government law or legislation.

Chapter 1: First use of microwave radiation, radar, thermal and non-thermal testing regimes

The first use of microwave radiation was by the military in the development of radar. Medical diathermy came soon afterwards using microwave radiation frequencies between 915 MHz to 2.4 GHz. The routine and occupational exposure to a novel band of RFR (radio-frequency radiation) led to a call for a safety standard in order to ensure military personnel were protected. Early work in radar suggested that eye cataracts could be a cause of concern. The resulting 'cat-fight' within military, medical and industrial circles was full of controversy. In order to establish a safe level of exposure to microwave radiation, you have to conduct experiments or assess clinical data to determine adverse effects. The early years of microwave research was mired in a lack of understanding on what to study i.e. thermal or biological effects. In fact, in the early days of safety research that was carried out by Western militaries, non-thermal biological effects were called 'anomalistic effects' i.e. within the definition of an anomaly with the norm being 'thermal effects'.

This early period in the history of microwave radiation and its uses is fascinating because it involves several powerful social actors each having their own paradigms of thought, behaviour and understanding, attempting to come together to assess the safety of a novel band of frequencies. In a 'must-read' article[(6)] titled, The Origins of U.S. Safety Standards for Microwave Radiation, the authors tells a tale of enlightened military personnel moved to assess all they can about the dangers of personnel working with microwave radiation. The realisation of that goal and its implementation quickly became bogged down through lack of leadership and/or some arms of the military assigned to carry out this work were either not qualified and/or not particularly interested. Part of this confused foray into safety and standards setting arose from the fact that the majority of personnel involved in these studies were of the view that thermal effects were the norm and non-thermal biological effects were secondary and difficult to assess and define. This resulted in much confusion within the bastions of military command in determining a level of exposure that would be protective of military personnel.

Thus, radar was deemed very important to the two superpowers and their aligned nations of those times. Unlocking the secrets of radar became top priority, yet at the same time, its safety vectors were largely unknown apart from its skin heating thermal effects and eye cataract issues. A priority for all nations was to establish efficient radar systems consequent with a good knowledge of occupational exposure and safety. At its onset, many Western countries opted on the study of **thermal effects** as a means to gauge safe exposure to microwave radiation. On the other hands, many of the Eastern countries, especially those of the Soviet bloc, deemed **non-thermal biological effects** more worthy of study. It is plausible to argue that that theoretical disagreements on what to study may have its roots in a geo-political form of pre-'Cold War' attitudes between the superpowers of the USA and USSR. If we look at what is happening today in 2022, the theoretical split between 'thermal versus non-thermal biological effects is still with us. The Western-aligned countries mostly support the ICNIRP advice on exposure levels based on skin heating thermal effects and the old USSR-aligned countries use much lower values of exposure based on non-thermal biological effects. Interestingly, Austria, Switzerland and Italy opted for Soviet-bloc exposure levels which are about 100 times lower than recommended by the ICNIRP. The Soviet-bloc countries to my mind have always produced the best scientific thinkers of modern times particularly in relation to studies on biological harm from radioactive wastes emitted to the soils, seas and atmosphere and of course, non-thermal biological effects from exposure to microwave radiation. It is common sense to most folk that new technologies might come with new, unidentified dangers

or hazards. If that technology is too useful to discard, the next best thing to do is to characterise its safety profile as completely as possible. Following its toxicological profile we can introduce a safety factor of 10, 100 or a 1000 in relation to concentration or power level. The following table details exposure limits from microwave radiation by country and whether that country base their decision on thermal, non-thermal biological effects or the precautionary principle.

SAFE LIVING Technologies Inc.

Creating Healthy Living Spaces

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support@slt.co › www.slt.co

International Radio Frequency "RF" Exposure Limits for 1800 MHz Range

(Cell Phone, WiFi, Smart Meters, etc)

Location	Reference	Exposure time	Limit Based On	Lower by	µW/m2	V/m
Most of Western Europe	IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
USA	(FCC) IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
Canada	Safety Code 6, Table 5 (2015)	6 minutes	Thermal / Heating	66 x	4,393,278.4	40.7
Russia	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
China	UDC 614.898.5 GB 9175 –88	3 hours +	Biological Effects	100 x	100,000	6.14
Italy	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Most of Eastern Europe	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Switzerland	Ordinance on Protection from Non-ionising Radiation (NISV)	Long Term	Precautionary	100 x	100,000	6.14
Toronto Board of Health, Canada	Proposed 1999	Long Term	Precautionary	100 x	100,000	6.14
Bio-Initiative Report recommendation	Bio-Initiative Report 2007	Long Term	Biological / Precautionary	10,000 x	1,000	0.614
Salzburg Resolution on Mobile Telecommunication	Preventive public health protection, Salzburg, June 7-8, 2000	Long Term	Precautionary	10,000 x	1,000	0.614
European Parliament	Resolution 1815, Strasburg, May 27, 2011	Long Term	Precautionary	10,000 x	106	0.2
Building Biology Guidelines Germany (Sleeping Areas)	SBM2008 - Level of No Biological Concern	Long Term	Precautionary	100,000,000 x	0.1	0.006,14
Cell Phone Operational Requirements				10,000,000,000 x	0.001	0.000,061,4
Natural Cosmic Radiation	MAES 2000	Long Term	Natural Exposure	10,000,000,000,000 x	0.000,001	0.000,000,061,4
Average Indoor Urban Exposure Toronto, Canada	Safe Living Technologies Inc. 2011	Long Term			200 - 5000	0.3 - 1.4

. Soviet-bloc exposure levels are normally100 times lower than that set in the US, UK and Australia. A notable exception within the Euro-bloc legislative and administrative wings of the European Union is the European Parliament stance on cell phone radiation and their tabling of Resolution 1815 in 2011.

On the far right of the table is a column called V/m. This is the maximum exposure level set by the ICNIRP measured in V/m (volts per metre). To put this data into perspective, I have carried out numerous radiometric surveys where I record signal strength with distance from mobile phone masts. In 99% of surveys I rarely recorded more than 7 volts per metre, even where several antennas are transmitting at the same time. Even indoors, the signal strength in V/m from commercial Wi-Fi routers rarely exceeded 6 volts per metre. The ICNIRP set an unusually high limit of 61 volts per metre which gives the telecommunication industries plenty of headroom of 'operational flexibility' if challenged in a court of law. In other words, it is probable the ICNIRP set high maximum exposure levels based on operational needs, both

current and future, rather than any meaningful safety data from their thermal skin heating regime? During the past 25 years, the alarm bells have rung in many research groups around the world who have already identified biological damage and cancer initiation from 'sub-thermal' levels of microwave radiation. In other words, adverse biological effects are being seen using levels of microwave radiation well below that set of 61 V/m by the ICNIRP.

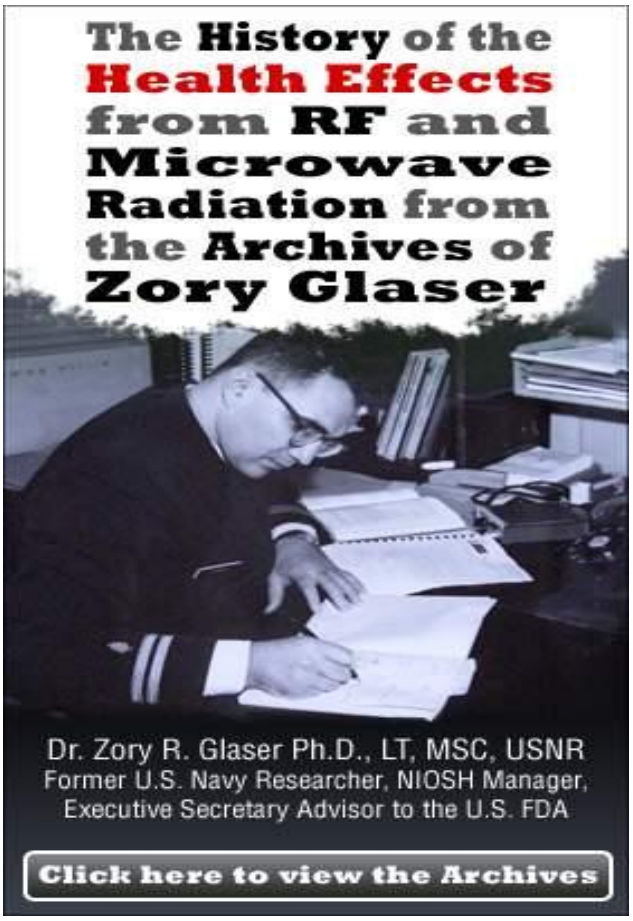
A small digression, when I was a PhD student carrying out my fieldwork within the environs of the BNFL (British Nuclear Fuels Ltd) nuclear-licensed nuclear reprocessing plant a new reprocessing plant opened called MOX (mixed oxide reprocessing). When I finished my particle deposition studies some years later, yet still in the process of writing up my thesis, it was interesting to note that the legislative levels of radioactivity discharged from their numerous stacks within an operational period were always reduced following the implementation of new stack or waste treatment facilities. In other words, did BNFL agree maximum stack discharge inventories with their regulators based on what they were able to operationally achieve or were maximum stack discharges of radioactive wastes based on ionising radiation safety data?

The 'pink elephant' in the living room for the ICNIRP/PHE and W.H.O. are discrepancies in exposure levels between countries in which some countries have a 100-fold increase in exposure levels of microwave radiation relative to other countries. I wonder what would happen if a group of ICNIRP members held a meeting with Russian experts, would they even shake hands, would they simply try and chat about the weather or football. What does that say about their ability to review historic and current scientific data on exposure levels? This in-ability for the ICNIRP to falsify their own hypothesis is tantamount to genocide. They either act as scientists or allow normal scientific protocol to prevail.

Zory's historical archives of research into effects of exposure from microwave radiation

My aim and objective in highlighting theoretical differences between thermal and non-thermal biological effects is to illustrate that (a) non-thermal biological effect testing regimes have been around since the dawn of radar and (b) the lack of scientific consensus on what to base exposure standards suggest the citizens of some countries are less protected than others based on this facetious argument that non-thermal biological effects do not exist. If anything, these historical data which are almost 80 years old should spur the ICNIRP to conduct non-thermal biological research themselves to simply falsify their own hypothesis and to ensure the advice they dole out to governments is safe, effective and protective for all citizens.

Zory's archives


The History of the Health Effects from RF and Microwave Radiation from the Archives of Zory Glaser
Dr. Zory R. Glaser Ph.D., LT, MSC, USNR
Former U.S. Navy Researcher, NIOSH Manager,
Executive Secretary Advisor to the U.S. FDA
Click here to view the Archives

In order to get a few points across as succinctly and as concisely as possible, I focus mostly on military research reviews of those times. There are two types of military researcher, (a) open-minded, inquisitive and conscientious, the other is close-minded, slightly inquisitive and conscientious. When they carry out a review and within their own particular mind-set, they look at all the available evidence and report on its context, importance and usefulness. The role of any reviewer is to simply do their job to the best of their ability and foremost in their minds are (a) does this technology work or (b) what health issues are present and what level of exposure to troops and other military personnel is a safe level. That said, we are all socialised beings and we like to simplify our lives, sometimes to the detriment to what we are actually doing.

For example I quote from a Defence Intelligence Agency Report[(2)] tasked to look at various non-thermal biological effect exposure studies, primarily from Soviet-bloc countries. The title of the review, signify the mind-set of the reviewers and this must be borne in mind when assessing this or any document for scientific conclusions. The review (Adams et al was called "Biological Effects of Electromagnetic Radiation, (radio waves and microwaves) in Eurasian Communist Countries U). It was published in October 1975. I reproduce an example of the context of what was playing out during the time of the review

"*Although some differences in standards remain between the various Communist countries and between military and civilian standards, the Communist standards are much more stringent than those of the West. An exception to this may be Poland where a recent relaxation of their standards has occurred. This is the first significant shift of au East European country away from the standard first set by the USSR in 1958.*

If the more· advanced nations of the West are strict in the enforcement of stringent exposure standard, there could be unfavourable effects on industrial output and military functions. The Eurasian Communist countries could, on the other hand, give lip service to strict standards, but allow their military to operate without restriction and thereby gain the advantage in electromagnetic warfare techniques and the development of anti-personnel applications"

•

Slightly out of context but nonetheless interesting is the fact that even back in 1975 the militaries of the world were engaged in studying radio waves as a form of sonic warfare and this review mentions 'sound and 'sonic waves' as an area of military research/engagement. Getting back to the task at hand, a military review has to be placed within the context of what was happening politically and militarily during those times.

Finally and to put all of this into context, we must acknowledge that Science as a field of inquiry is always changing. Advances in analytical technologies and in computing power i.e. statistical and imaging technologies allow us to ask many more questions of the natural world than were impossible 90 years ago. If we also compare and contrast experimental approaches from the 1930s between Soviet-style to US/UK military research protocols, we need to remember that many of those scientists of the East and West were at the top of their game yet held differing views on what to study. The issue is not about who is right and who is wrong, it is my task to merely point out that non-thermal biological effects have been studied since the early days of radar and current standards setting bodies have no scientific right to completely cancel one half of the exposure-safety equation. Significantly, it is even more important now than in 1930 that the ICNIRP attempt to falsify their own thin hypothesis that radiofrequency radiation up to 300 GHz is non-ionising. It is important because with each passing day, more and more microwave radiation-enabled toys, gadget and products come to market. We reached exposure saturation point some 20 years ago and with 5G around the corner, there is no end in sight from yet more strands of microwave-enabled gadgets festooning across and within our electromagnetic prison.

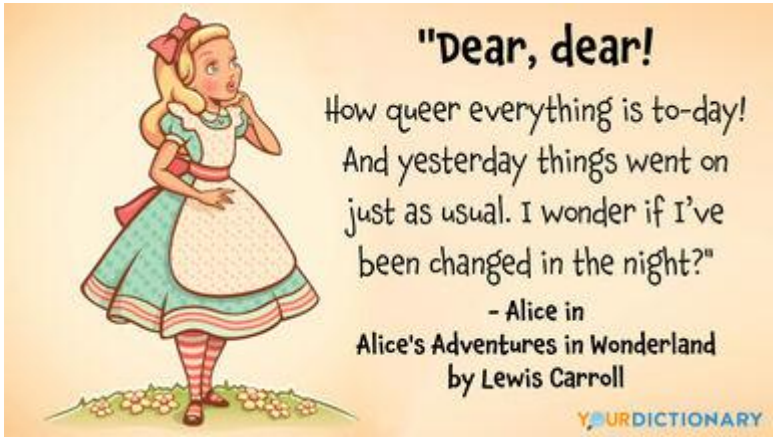
Most of the literature pertaining to the historical archives of non-thermal biological effects of microwave exposure have been scrubbed and lost from the Internet, courtesy of the google-bots whose algorithms work against the full and free exchange of scientific information. There is however, one place which contains an Aladdin's haul of a past research trove and the link is here: https://magdahavas.com/ Magda Havas is an acknowledged expert in biological safety issues from radiofrequency radiation. She is also the keeper of the records of Zory Glaser who is also one of the foremost experts in microwave research during those times. Much of the data

I present is from these archives and you can peruse his work here: https://magdahavas.com/category/from-zorys-archive/

I now dip into the vast archive and treasure trove of a literature base containing many thousands of non-thermal and thermal effects research experiments conducted from the late 1930s onwards to about the mid-1990s. I do not wish to convince anyone that thermal effects are useless in determining adverse harmful effects. Nor do I wish to solely champion non-thermal biological effects as the prime protocol to address safety issues. My objective is to simply show that back in the day and concurrent with the development and tweaking of radar systems there were two schools of thought on adverse effects from exposure to microwave radiation. One school of thought (mostly of the West) argued that thermal effects are worthy of study whilst the other school of thought (mostly Soviet-bloc) argued non-thermal biological effects was the way to go.

I also dip into the archives both past and present belonging to Louis Slevin who also acts as a keeper of the records of all things microwave during the past forty years. Louis' website (http://www.microwavenews.com) contains the most balanced and articulate perspective on microwave radiation that I have come across. This website also concerns itself in ELF (extremely low frequency) radiation and is yet another website I dip into on issues of 'dirty electricity' and consequences on biological health from exposure to electromagnetic fields.

To re-iterate, my purpose is to illustrate the knowledge base of non-thermal biological effects in which East & West locked scientific horns for ascendancy between use of thermal and non-thermal biological effects to set standards of exposure to microwave radiation. I have no wish to re-hash the old arguments that have been silently going on for absolute donkey years within radiation exposure circles. All I need show is who knew what and when. It is we, who must judge what to do in response to what we find. That is the sole purpose of this book, to connect the dots between the covert machinations of governments, so-called heath regulators, the telecommunications industries and media as we blissfully play, unawares of the electromagnetic prison that has silently encased ourselves, family and community.



It is now time to jump down the rabbit hole and elucidate some of the 'baby steps' of technological introductions that point to where we currently are. Call me a cynic but governments and those entities behind governments adopt a softly-softly approach when introducing huge sociological and societal changes. They introduce the transistor for example, give it time to mature and before we know it, everyone has access to microchips.

I start with Bill Gates, the founder of Microsoft. Mr Gates almost single-handedly ushered in the first baby step of the Brave New Digital Age – software for computers. The introduction of the early IBM 386 and later 486 machines also changed everything everywhere, almost overnight. Windows 3.11 came with its own browser to enable seamless connection to the Internet using a dial-up telephony modem. In short time, computers went viral as did Windows software which could be found in almost, every home, factory, shop and office. Concurrent with the evolution of home computing were advances in connectivity to the Internet. Dial-up was replaced with broadband routers and broadband was replaced by fibre optic cabling. The biggest advance in computer connectivity over the past 15 years was the introduction of Wi-Fi. This single innovation revolutionised and took the Digital Age to the next level of connectivity and, regrettably, myriad forms of biological damage including anxiety, stress and depression from exposure to microwave radiation were evidenced across the land.

If you follow the money of Mr Gates, he is definitely well-connected to the corridors of power because once he finished his stint at Microsoft, he founded the Bill and Melinda Gates Foundation which doled out lots of money at vaccines which his organisation injected into the populations of several African countries and India with disastrous effects to the locals. He was also involved in the so-called Green Revolution in India where he tried to get local farmers to use all sorts of hideous substances including GMOs. His fan-boys call him a philanthropist, he is worth billions and his latest ventures are to buy up as much arable land in America as possible whilst espousing folk-tales of climate change. Like his bosom pal, Bezos, when he comes in with an idea, it has public good and functionality, yet the public bad is never advertised nor publicised. Elon Musk, Mark Zuckerberg and Steve Jobs are also of this vintage and energy. Bezos brought in automation and de-humanised workfloor practices. Mark Zuckerberg provided a platform in which we plebs could either live out our lives within this metaverse platform or show anyone watching, we've just has a cup of tea atop Snowdon. Facebook is now quickly morphing into a metaverse fantasia-land of man and machine. Elon Musk ushered in the world of electric cars specifically for smart motorways /cities for a slimmed down world population. Each of these energies have introduced different aspects of a changed environment for a world population. Buzzing away in the wings of all these Elites is the spectre of space travel.
Within the context of a digital age, vaccines, metaverses and automation equals a dystopian sci-fi reality reminiscent of a Blade-runner film in which human beings are viewed as nothing more than automatons or electric cattle. None of this would be possible without the ICNIRP who managed to lever themselves into positions of power and effectively 'cancel' non-thermal biological effects and to champion thermal effects.

It's about 35 years since the introduction of computers and about 25 years since the full scale rollout of mobile phone technologies. . I remember back in 2000, the genuine concerns many parents expressed when BT (British Telecom) attempted to install their mobile phone masts across the road from local primary schools. Parents fought BT and the local planning departments and in most instances, won. In today's world, that community zeal and protest has largely disappeared.
It is unfortunate that the youth of today will never know what it is like to grow-up, play, work and have kids away from the addictive lure of computers, mobile phones and social media. For them, this is all they know yet from my perspective, most young people are caught within the cross-hairs of a nest of harmful microwave transmitters. Digital devices are everywhere, in almost every consumer item and we are exposed to all manner of microwave radiation frequencies, every second of every day. In later sections I show that even well-designed, scientifically literate studies that clearly identify cancerous events from exposure to

microwave radiation are still, systematically ignored both by government health regulators, the media and the ICNIRP. I present data from four published reviews of biological effects from exposure to microwave radiation from 1950 onwards to about 1995.

Report 2: Biological effects of electromagnetic radiation (radio waves and microwaves) – Eurasian Communist Countries (U)

The Defence Intelligence Agency Report[(2)] does not include a bibliography and it is difficult to estimate how many exposure studies were evaluated. Unsurprisingly, the reviewers found differences in methodology, dose, dose equivalents and duration of exposure which made it difficult for them to establish cause-effect exposure paradigms. The reviewers did say that the higher frequencies produced the most biological effects. The report details a section on clinical analyses on individuals who were occupationally exposed to microwave radiation. Some of the data below is subjective and what caught my eye were the blood study data. Firstly, 60% of the subjects had increased alpha and gamma globulins. Globulins are blood proteins that are produced in the liver and transport nutrients around the body, aid liver function and blood clotting. Gamma globulins contain antibodies and if this count is high it usually signals the body is fighting a disease. A high alpha and gamma count is indicative of an autoimmune disease, infection or a type of cancer called multiple myeloma. Up to 27% of subjects had monocytosis or high white blood cell counts. Monocytes protects your immune system from toxic substances. A high count of monocytes might be indicative of some form of disease, cancer or autoimmune disorder.

Many of the subjective complaints detailed below will be recognisable by anyone who suffers from EHS (electro-hyper-sensitivity) to microwave radiation. Many individuals, even mildly EHS have reported to me they suffer from fatigue, headaches and sleepless nights. Their only remedy is to retreat (if they can) to areas of very low microwave background.

"Clinical studies were done on thirty subjects, aged 25 to 40 years, exposed to industrial ultra-high frequency centimetre waves at power densities of 10 to 500 mW/cm2 for periods of time ranging from 4 to 13 years. Subjective complaints included generalized weakness, afternoon and evening apathy, fatigue, headache, sleep disorders, and non-radiating precordial pain suggestive of asthenia or neurasthenia with autonomic dystonia. Electroencephalography revealed periods of absence of alpha wave activity alternating with low' R waves, increased frequency of potentials, dysrhythmia, periodic low peak potentials, and reactions to afferent stimuli. Peripheral blood studies revealed lymphocytosis or monocytosis in eight subjects; increased alpha and gamma globulins were found in 18 subjects".

These types of studies are difficult to assess for cause and effect because the review itself says *"the information reported in this study· has been drawn from scientific, military, and military journals, intelligence reports, magazines, news · items, books and other publications. The information cut –off date for this study was 1 October 1975*".

In other words, the clinical trial data used in the review here might be from a factory making radar for commercial and military purposes. Perhaps blood analyses were part and parcel of the occupational regime, workers having to submit routine blood samples. It would be difficult for any scientist to make sense of occupational data not designed for experimental purposes. To a toxicologist, this data is a gold mine of information because it is a dataset of a select bunch of radar workers exposed to microwave radiation for up to 14 years. Yet, a physicist from the ICNIRP would dismiss all of this data primarily because it has a focus on non-thermal

biological effects and (b) the process itself does not follow experimental clinical trial format. The silence of the three monkey tricksters in all matters of biological safety is impacting all of us and if hospitals and doctors simply look for signs of 'microwave sickness', at least those most affected can do something about their lifestyle.

The real point of these historical reviews is to simply look for patterns of disease and other less dangerous adverse biological effects from a database of widely differing scientific and environmental variables. It might be possible for example, to tease out a few variables such as frequency, duration and intensity of radiation from say, 100 or more industrial establishments, medical practices and military units who are routinely exposed to microwave radiation in their jobs. The important take-home point relates to the fact that even though a pre-"Cold War" mind-set was present in the minds of the reviewers, the existence of non-biological effects was already known at that time and it formed the focus of their review. Perhaps an analogy might be useful here, it's like asking the head coach of the Manchester United football team to review the methodology of the Liverpool F.C. academy as to why the Liverpool Football Academy is more successful that they! In all sorts of things we carry around with us, all sorts of 'baggage' that get in the way of reasoned and objective observation and judgement.

Report 3: Radiofrequency/Microwave Radiation Biological Effects and Safety Standards: a review

If we fast forward to a review by the now defunct US air force base located in New York called Rome Laboratories,[3] the document reports on events from 1988 – 1994 at the height of the Cold War. The introduction to this document is startlingly clear on the induction of biological harm from exposure to microwave radiation.

"*On July 15-16, 1957 the first of four Tri-Service Conferences was held to discuss the effects of RF/MW radiation. These conferences were the first major effort put forth by the scientific community to explore the biological effects of exposure to RF/MW radiation [14]. Since then, researchers have discovered a number of biological dysfunctions that can occur in living organisms. Exposure of the human body to RF/MW radiation has many biological implications. The effects range from innocuous sensations of warmth to serious physiological damage to the eye* ***[1],*** *[2], (5], [6], [8], [15]. **There is also evidence that RF/MW radiation can cause cancer (81**. The absorption of RF/MW radiated energy causes biological reactions to occur in the tissue of the human body. In order to determine safe exposure levels and to understand the effect of RF/MW radiation it is necessary to know the…..*

It goes on to say,

"Nonthermal responses can be less noticeable and are often more difficult to explain than thermal effects. These responses are related to the disturbances in the tissue not caused by heating. Electromagnetic fields can interact with the bioelectrical functions of the irradiated human tissue ***(8).*** *Research conducted in the Soviet Union and Eastern Europe suggests that the human body may be more sensitive to the nonthermal effects of RF/MW radiation [3]. There are many reported biological effects to humans and animals that are exposed to RF/MW radiation. A review of the important findings is given in the following"*

Note: RF/MW is radiofrequency/microwave radiation.

The scientific exposure evidence base was growing with each passing year and significantly, within 10 years or so, non-thermal biological effects began to form part of the scientific armoury of exposure experiments. In other words, if the defence industries has this information to hand, it also means that today's political leaders, its regulatory agencies and the telecommunications industries were also aware that ***exposure to microwave radiation causes cancer***. Despite all the accruing evidence, none of it stopped the rollout of devices designed to power our upcoming 'Digital Age'. It also illustrates the uselessness of the role of the private organisation, the ICNIRP in setting exposure standards to microwave radiation, purely on thermal effects. Also complete ignored in the on-going silent debate with reference to thermal and non-thermal studies is the concept of the Precautionary Principle. Simply put, no scientific evidence of harm does not mean that biological harm has not occurred. If the safety of a substance is challenged and the substance itself becomes mired in scientific controversy, the Precautionary Principle should kick in. The real issue arising from our exposure to microwave radiation is the silence airing any of these issues within the general public. Science will bat these issues around for the next 20 years and be no closer to offering solutions, Science effectively 'brick-walls' the activities of the telecommunication industries from proper public scrutiny and scientific challenge. Make no mistake, the ICNIRP represent Big Science and this private organisation will not change its spots, not even in the face of the NTP rodent cancer study of 2018!

By the end of 1994 (the date of publication of the US military Rome Report), I was a PhD research student and Internet connections were strictly telephony dialup. Even in those vintage years of the Digital Age, all my radiometric counting equipment and statistical analyses were carried out using appropriate software. In other words, the digital revolution had begun and was rapidly assimilated in our every day to day activities whether as students or mail man/woman. At that time, everything in colleges and universities was 'hard-wired'. In this country from about 1995 – 2000, awareness of the dangers living close to a mobile phone mast was out there and even the mainstream media ran articles on the protests against BT and its mobile phone masts rollout. When broadband in the UK was rolled out in 2000, the digital trap was sprung because with broadband came the possibility of Wi-Fi.

Report 4: Influence of High-frequency Electromagnetic Radiation at Non-thermal Intensities on the Human Body *(A review of work by Russian and Ukrainian researchers)*

Fast forward to a peer review scientific publication in 2001[(4)] by a group of Russian and Ukrainian workers, who focus on several types of biological effects from exposure to microwave radiation. The document provides a treatise of scientific developments and advances in understanding from exposure to microwave radiation and possible initiators of adverse biological effects. I highlight a short section below, but the strength of this paper relates to the work carried out on electromagnetic frequencies in the millimetre wavelength spectrum. I will come back to this paper later, where I focus on the imminent use of 5G millimetre wave electromagnetic frequencies and its probable effects on our biology.

"From the beginning of the 1960s in the USSR, a wide range of research was conducted on the health of people who had contact with EMF (electromagnetic frequencies) on the job. The results of clinical research showed that prolonged contact with EMF in the SHF (super high frequencies from 3 GHz – 30 GHz) band can lead to development of diseases, the clinical profile of which is determined above all by changes in the functional condition of the nervous and cardiovascular systems. It was proposed to define it as a specific illness— ***radiowave sickness.*** *This illness can have three syndromes according to the acuteness of the disease[(4)]:*

- *asthenic syndrome;*
- *astheno-vegetative syndrome;*
- *hypothalamic syndrome".*

The other significant aspect of this work is the concept called 'sub-thermal' effects. It is well documented from historical reviews that non-thermal biological effects were observed well below the level put forward and/or recommended by the US military for thermal effects from way back in the day. In spite of all data available from the military and other safety reviews, the ICNIRP ignored all of it and imposed its own level of exposure for thermal heating effects. The ICNIRP based their exposure advice on the data resulting from exposing a plastic head mannequin to microwave radiation for a six minute period and recording the rise in temperature of the head! I think the revised exposure period for this test is now 20 minutes of exposure, yet, what is an average period in which we are subject to microwave radiation? Potentially, it is 24/7 5 days per week. During the remaining weekend period, we are still exposed to microwave radiation from our Wi-Fi routers and other emitters. In spite of our current exposure patters, 6 or 20 minutes exposure is that is used by the ICNIRP.

I sometimes think that we are reading from the script of a Monty Python sketch because much of what happens within the 3 trickster monkeys is absolutely surreal! In terms of ignoring what is plainly in your face, the Monty Python 'dead parrot' sketch comes to mind.

The Russian definition of ‘radio wave sickness or ‘microwave sickness’ and many of those people who suffer from EHS will testify to its reality. In other words, none of this work is even considered by the ICNIRP because they focus on thermal skin heating effects only. The silence from the 3 trickster monkeys continues to be subtly, deafening! I close this chapter with research findings that are easy to explain yet difficult to accept. In the very early days researching non-thermal biological effects, Russian workers explored which microwave frequencies do the most biological harm. What they found is shocking in its implications, but maybe, this is all co-incidence? I delve deeper into all of this in later chapters.

“Therefore, when SHF (super high frequency) energy is absorbed, it produces so-called “hot spots” of local heating, including in vital organs. During this process, a person might not feel any heating of internal organs inasmuch as heat receptors are located in the skin. For example, most dangerous from the point of view of formation of “hot spots” in the head are frequencies of 700- 2500 MHz in the decimeter range, and it is precisely here that the frequencies of 900 MHz, 1800 MHz and 2.45 GHz of cellular communications fall. Absorption of EMF in biologically active points is many times more effective than in other parts of the skin, and this energy, through the system of Chinese medicine (i.e. acupuncture meridian points), affects internal organs and the body as a whole”.

In other words, of all the frequencies available within the electromagnetic spectrum for the telecommunication industries to use for mobile phone networks, they (a) selected the microwave bands and (b) within that band, the most biologically damaging frequencies. ***Nothing to worry about and it is pure co-incidence.*** I seem to have heard that phrase many times of late from the echo-box media!

In the following chapter I briefly delve into the role of government and how it has changed the planning application landscape in which the local planning department were neutered and we the public have very little to say objecting or appealing against the siting of mobile phone masts and associated hardware. I then look at the role of the ICNIRP and its relationship with government health regulators. I finish this chapter by discussing a few peer review studies that illustrate that ‘alternative’ scientists continue to detail the litany of adverse biological effects from exposure to microwave radiation, yet sadly, all of it is ignored.

Chapter 2: Local planning legislation and the conflicts of interest between the ICNIRP and PHE's top advisory panel, AGNIR

These are challenging times for anyone who is concerned about safety issues in relation to living within 400m of mobile phone masts. The first section relates to the legislative landscape prior to 5G and from April 2022, new legislation was implemented to dis-empower land-owners and citizens even further. This is followed by a brief tour of the ICNIRP plastic dummy mannequin called, S.A.M. I finish this chapter with a discussion of the scandal and the conflict of interests of the revolving door policies between the ICNIRP and PHE. Whilst this incestuous relationship between the ICNIRP and government has been going on, a pattern of rising brain tumours are evident across the globe -

Governments get what they want by implementing legislation in baby steps. In that sense, they play the long game and introduce disparate segments of their legislative wish list bit by bit. They always have a good common-sense excuse for getting their way because they argue that telecommunication connectivity is absolutely vital to a well-functioning and modern society. Central Government has responsibility for ensuring the telecommunication industries are able to install their masts, antennas and ancillary equipment anywhere they deem necessary. In order to do this, the government passes legislation to ensure there is no interference to the needs of the mobile phone companies from local Planning Departments or citizens. Planning departments were effectively neutered years ago because the government changed legislation to (a) limit the grounds on which an appeal against a planning application can be based and (b) planning departments know that if they object to a planning application from a telecommunication company, that objection will be automatically overturned on appeal.

Citizens cannot object to the siting of a mobile phone masts on health or safety grounds. The telecoms companies just need to show the ICNIRP safety exemption certificate. In fact, the grounds to complain are very limited and 'amenity' is the only one I can think of. Lawyers and solicitors expert in planning law issues should be consulted in these issues because it can be a minefield to understand because Scotland, England and Wales have their own legislative powers. The very good news for 5G phone mast planning applications is a legal precedent was set in which telecom companies must provide safety data in support of their application – more on this later. I explain in full, later on. It is information that everyone has to be made aware of.

The introduction of 5G technologies spurred government to enact ever-more, over-arching powers to achieve their stated goal of achieving 95% telecommunications coverage within England. In effect, the telecommunication industries have to massively increase the number of mobile phone telephone masts for both 4G and 5G technologies. The crucial unspoken part of this rollout is that due to the nature of 5G signal propagation (this will be explained fully in a later chapter) a 5G mast and antenna array must be installed within about 25m of the populace and many more, much bigger 25m – 30m will slowly mushroom across our urban landscape very soon.. British Telecom and Openreach have almost achieved 90% of that goal by planting 5G mast/antennas almost outside the door of nearly every household in England.

This was done clandestinely because no-one was asked if they wanted a 5G antenna outside their bedroom window and secondly, the 5G mast and antenna was simply disguised to look like a typical council-owned new L.E.D. lamp post. Look outside your front door and tell me how many lamps you can see. They will be spaced about 30m – 50m apart on both sides of the road and they look like the telecommunication mast in Figure 1.

Figure 1

British Telecom 5G mast and antenna

Changes to local planning laws in England

Both before and during the COVID-19 pandemic, central government, local government and the telecommunication industries secretly targeted us with a technology so unsafe, that none of these players even acknowledge what they are doing. That is just one example of the double-speak of government/industry and what covertly goes on in many smoke-filled rooms.

Other legislative changes were enacted April 2022 i.e. existing mobile phone masts for 3G and 4G can be up-graded to 5G specifications, i.e. 30m maximum height and wider. Much of the infrastructure of the telecommunication industries for masts up to 25m mast height is defined under planning purposes as *'permitted development'* i.e. the mobile phone companies just need inform the local council what they intend to install before installing their mobile phone infrastructure of masts, antennas and cabinets which house the power supplies and microwave transmitters.

The relationship between land-owner and mobile phone companies is akin to a role-reversal relationship as detailed in this link: https://www.thorntons-law.co.uk/knowledge/landlords-could-lose-out-over-phone-mast-rules-changes.

Under the proposed changes:

"Landlords would not receive a market rent based on the economic value of their site to the network operator; rather they would only receive compensation for the use of their land based on the agricultural value.

Land agents predict that this could lead to a reduction in annual rents payable to Landlords of well over 90%.

While the details of the new scheme are as yet unconfirmed, it is proposed that network operators will be given greater powers, along the lines of those already enjoyed by utilities providers, to take access and to erect masts even before agreement on valuation is reached with the landowner.

If a landowner then wishes to dispute the offer from the provider they may need to take the matter to a tribunal at their own expense and with little certainty of the outcome.

There is a danger that operators may even seek to terminate current agreements in in order to replace them with arrangements under the new scheme".

In other words, government and the telecommunication industries appear to be joined at the hip in anything related to mobile phone platforms and these actions work against the best interests of the majority of the population. Somewhere in all these machinations, the word *democracy*, *public accountability*, *safety*, *open-ness* and *communication* are conspicuous by their absence. It is also a good to remember that governments never, ever tell us what they are going to do once in power. They carry out their agendas, step by step and 30 years down the line it is ***we*** who experience the tsunami of 5G rollout with no safety standards in place and no minister accountable for any adverse biological effects, diseases and other ailments.

Globally, it does not matter a jot which political party is in power, left, right, up, down, green, red or yellow, the same template of baby-step technological change occurs in lock-step across many countries. Not all is doom and gloom and there is room for manoeuver in reigning in the spectacle of 25m mast installations on every corner! Local authorities must heed the details of this case.

Hallelujah, good news at last

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In November 2021, a judicial review took place in the High Court of Justice, Queens Bench Division, Planning Court, The Strand, London. The case, CO/3114/2021 was between Springgay versus Brighton & Hove Council (with interested party, Hutchison 3G UK Ltd. Prior to judicial review, the local planning department approved the siting of a 5G mast within 25m of a local primary school. This was over-turned in court for reasons given below. Interestingly, Brighton & Hove council and 3G did not contest the hearing i.e. did not bother to show up and the council was ordered to pay claimants costs of £13,340.

The reasons given for overturning the original planning decision have set a legal precedent.

Upon reading the Statement of facts end grounds for judicial review claim and supporting evidence and the Defendant confirming that they will not be defending the claim AND UPON reading the Statement of Reasons justifying the making of this Order as agreed between the parties

IT IS ORDERED that:-
1. The application for permission for judicial review is granted;

2. The claim for judicial review is allowed on the basis set out in paragraph 2 of the Statement of Reasons;

3. The Defendant's decision notice of 30 July 2021 granting prior approval under Reference, BH2021/01639 for the Installation of a 15m Phase 8 Monopole with wrap-round cabinet at base and installation of 3no ancillary cabinets on land south of 91 Fishersgate Terrace, Portslade is quashed;

4. The Defendant shall pay the Claimant's costs of and incidental to the instant claim to the issue and service of proceedings in the agreed sum of £13,340 VAT inclusive.

This is the important part of the Review.

Statement of Reasons
1. The Claimant has brought judicial review proceedings seeking the quashing of the Defendant's decision notice of 30 July 2021 granting prior approval under reference BH2021/01639 for the Installation of a 15m *Phase 8 Monopole with wraproundcabinet at base and installation of 3no ancillary cabinets on land south of 91 Fishersgate Terrace, Portslade.*

2. The grounds for judicial review are:
(i) the Council unlawfully determined that the highway safety implications of the cabinets and the concerns expressed by the Council's highways team were not a relevant consideration; '

(ii) the Council failed to address the health impacts of this particular proposal and to obtain adequate evidence of the assessment of the proximity to the school and the amended proposal; and

(iii) the Council failed to consider whether the facility could be sited on an existing building or structure, the Interested Party having failed to provide any evidence on that matter.

The legal precedent set in this judicial review hearing is that for the first time, 'health impacts' was mentioned and that the council (and 3G) had not addressed these issues. This means that in any future challenge or objection to a planning application for a 5G mast, the council and the telecoms company must provide safety data. They must also provide evidence that they have assessed other sites before choosing their preferred site. The results of this judicial review could have big implications for anyone not happy with the siting of these 'heavy duty' much taller, 5G masts and associated hardware outside their front door or street corner.

The reason why the council did not contest the claim is quite simple, the company, 3G UK Ltd had no safety data to satisfy the Honourable Mr Holgate, that the emissions of microwave radiation from the 5G mast would not impinge of the biological safety of the school children.

The sensible thing to do is to obtain a copy of the judicial review and email it to the all heads of planning departments and council leaders across the width and breadth of this land. If we allow this landmark hearing to disappear into the mists of time, it will be difficult to stop the avalanche of future 5G mast/antenna planning applications in the future. You can obtain a copy by looking on-line or by emailing me directly at:
mailto:ellisevans369@gmail.com?subject=Judicial Review, Brighton & Hove Council 5G mast application appeal

I now change tack and discuss the methods the ICNIRP carry out to determine skin heating effects better known as *thermal effects*. If this is new to you, just remember, the ICNIRP base their exposure advice on this one single test. It has not changed significantly over the past 30 years.

The ICNIRP SAM (specific anthropomorphic mannequin) model

This next section discusses what happens when you put a mobile phone next to your head. As you answer your mobile phone and put it next to your head, you are immersed in a cloud of microwave radiation. As you talk into your phone, you irradiate one side of your head with microwave radiation energies which (a) heats the skin and (b) microwave energies pass through the skin to irradiate and heat brain tissue. Mobile phones use the same microwave frequencies as medical diathermy. The purpose of diathermy as discussed earlier was to heat up organs deep in the body for therapeutic purposes. Well, that is what they thought when they first started using it but the use of medical diathermy dramatically decreased once physicians were made aware of the existence of non-thermal biological effects.

Each mobile phone manufacturer has to provide what is called SAR data for each model of their mobile phone range. The acronym SAR stands for Specific Absorption Rate of that mobile device. Apple, Nokia, Vodaphone mobile phones etc. all emit microwave radiation but its exposure must be below a certain level. The amount of microwave energy intercepted and absorbed by your head, skin and brain region is dependent on several user characteristics. These include, how closely you hold the phone to your head, the closeness of the phone to the brain region and the angle of the phone in relation to the head. Besides the hundreds of different ways, consumers use their phones in the real world, the design of the phone can also pose unexpected dangers. These are:

- differences in transmit power between different models
- differences in design of antenna and its physical location in the phone itself and
- differences in age, morphology, sex and physiological maturity of the mobile phone user
- antenna matching sections within the phone break down, transmit efficiency decreases resulting in internal heating of the power transistor and erratic operation of the phone

When the ICNIRP send out their testing methodology to external SAR-test laboratories, it stipulates a specific distance between mobile phone and head must be maintained. In order to achieve reproducibility in test methods, laboratories put a spacer between the mobile phone and the head. The head is then irradiated with a defined transmit power of microwave radiation for a period of 6 minutes. The resulting rise in thermal temperature of the head is recorded. The SAM model forms the basis for any advice given by the ICNIRP when setting exposure levels. I repeat, standards-setting organisations such as the ICNIRP stipulate a maximum output power of radiofrequency exposure of microwave radiation to not exceed 2W kg^{-1} bodyweight regardless of the maturity of that body.

Before I discuss the SAM model in greater detail, what exactly is the SAM trying to do based on a few chemicals squirted into a cavity of a plastic mannequin head? Is it possible to (a) replicate the intricacies and complexities of the human head using several chemical substances, (b) is it possible to assume that everyone talks into their mobile phone in the same way, (c) is it possible to assume that a typical mobile phone conversation is 6 minutes in duration (d) is it possible to use the exposure data from a plastic head SAM model and then to say the exposure data SAR values of that Apple i-Pad will be protective of young children, babies, adolescents and females?

Is the SAM model, the best they can do to assess exposure levels? Are they confident the SAM model covers every avenue of bodily harm? There are so many inherent issues in SAR as a

safety concept that it is difficult knowing where to start but I do based on Gandhi et (2011) called *'Exposure Limits: The underestimation of absorbed cell phone radiation, especially in children'.*

I reproduce an article I wrote some time in 2012 and before the Arazi, 'Phonegate' scandal.

"In order to obtain authorisation for a product to operate within the microwave bands, industry provides a dossier which includes experimental results from the skin heating effects of specific levels of microwave radiation to a mannequin, or artificial head. This mannequin is formally known as a 'Specific Anthropomorphic Mannequin' (SAM) and its head size plus other features are somewhat unusual (see image below). The experimental method is to pour a liquid into an opening at the top of the head, irradiate the head with a specific microwave frequency for a specified period and measure any change in temperature from a probe mounted on a robotic arm. The objective of the experimental method is to produce specific SAR data based on the transmit power of that model device. The resultant heat increase inside the head can be plotted versus transmitter power to derive an SAR graph of temperature rise versus transmission power.

Outside of the test facilities that use the SAM model and the ICNIRP, health regulators and telecommunication industries, there is much discussion and controversy on the limitations of its use. These controversies argue that data generated from the SAM model might not be representative of the general public nor can these data be used in their present form to accurately assess exposures for difference in male, female form, head size, body weight, differences in physiological development, skull thickness etc. The experimental protocol allows itself up to 30% plus tolerance. In other words if exposure equals 2 watts per kilogram of body tissue, the actual exposure can be as high as 2.6 watts per kilogram of tissue and still be within SAR 'specification'!!

Typical SAM setup

The experimental setup has limitations in many areas and these are detailed in Gandhi et al [(7)]. The size of the mannequin head is supposed to be representative of homo sapien sapien, yet it was decided to use just one size of head and to base all exposure advice to everyone regardless of size. The head size of the mannequin is based on data obtained from US military army recruits. The 90th percentile of head size was used including a body weight of 220 lbs and a height of six foot two inches. In other words, the ICNIRP used the physical anatomy of an individual who represents the top 10% of the US marines in terms of physical size, body mass, bone density

and cranial thickness! The 90th percentile man is used to set exposure levels for the general population. This 'one size fits all' SAR standardised exposure data theoretically sets maximum exposure levels to babies, toddlers, young children, adolescents etc. In other words, and in the real world, anyone below the 90th percentile of 'gigantus-marine', will receive proportionally, a higher dose. Young children for example have much thinner bone density than adults but crucially, their immune system and biology have not yet matured. The real question of course, relates to a few common sense questions, (a) regardless of the size and bone density of 'gigantus-marine' does this experimental setup approximate thermal heating effects to the head and skin of consumers? Gandhi indicates that the dose to 5 - 10 year old children can be up to 153% higher than the dose measured for the typical SAM model 'gigantus-marine' standardised exposure level.

Other design flaws relate to reproducibility. The experimental setup is fairly easy to replicate providing you have access to calibrated probes and tightly-characterised transmission powers. The fluids that are poured into the top of the head however, should be suitably defined and characterised for electrical conductivity and permittivity. It is not clear whether or not different laboratories use a standardised mix of fluids to aid reproducibility of experimental data. If standards-testing laboratories use substances with differing electrical and permittivity constants from one place to the next or from one country to the next, clearly, it will be impossible to ensure standards-testing laboratories are doing their job properly.

There are also problems in measurement geometry because a plastic spacer is used instead of a replicated ear. This has the effect of moving the mobile phone a couple of centimetres away from the head. How many people do you know, keep a few centimetre distance between their phone and head when in use? In the early days of mobile phones, consumers simply clamped the phone to the side of their head and the information to inform consumers about correct use of that phone was hidden somewhere in the small print.

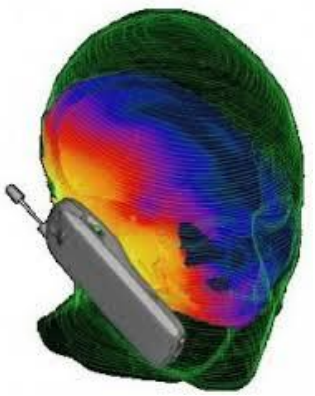
Phonegate

Buried in the small print of every mobile phone manual is the SARS data and how to physically hold and use that device. The manual explains the user should keep that device a specified distance from the head. What is not made clear to the consumer, however, is, if they do not follow exactly, these instructions, they may exceed the SAR maximum exposure level. How consumers actually use their mobile phones and consequent exposure was looked at by the French government, National Frequency Agency (ANFR) from 2012 – 2016. They tested over 380 mobile phones next to the head. The data showed that for some models of mobile phones, the SARS limit was exceeded by 300%. .

ALERTE PHONE GATE
YOUR CELL PHONE IS DANGEROUS!
For your HEALTH adopt these simple gestures:
Not in your pocket
Not against the ear
Never while sleeping
Santé publique France
"In 2018, multiplication of 4 and more of the most serious brain cancers "
Act Now !
Share and Inform those around you >>>
www.phonegatealert.org
International NGO for protection of the health of cell phone users

The lead investigator, Razini needed a court order from his own government to release this data to the public and scientific world. This study was later dubbed 'Phonegate' because the French government wanted to cover it up and refused to release any of it until it was forced to do so by court order. In response to the French Phonegate scandal, the telecommunication

industries do what they always do in times of crisis by keeping as quiet as possible or attempt to issue 'noise' statements in response.. This issue is currently and quietly being fought out within the halls of the European Parliament but the ICNIRP, PHE and FCC etc. simply carry on with business as usual.



The SAM model with all its limitations is just one side of the safety equation. The other side of this safety equation is what I call the 'operational transmit need' of the telecommunication industries. In order for telecom companies to send and receive microwave signals between phone and mast, a specific transmit output power is routinely required that ensures reliability under all environmental conditions. In other words, an output power based on 'operational need' will by definition be higher than it could be. I suspect the SAM model provides an excuse for the ICNIRP to give the telecom companies a transmit power well in excess of what is required for normal radiofrequency operation. The ICNIRP set an exposure level from a mobile phone transmitter antenna at 61v m^{-1}. In my opinion, this signal strength is excessively high. I also suspect the value of 61v m^{-1} was given to enable 'operational headroom' for the present and future telephony needs.

I end this section on the sad saga of poor science, inadequate state regulation by looking at a typical high-selling, highly priced digital gadget made by Apple computers. I re-visit this item when I look at this and other gadgets of this type that are used in schools on an every-day basis.

Apple iPad:

The full article can be found here and it is from 2013: *http://www.safeinschool.org/2013/11/ipads-dangerous-children-health.html*

When ifixit.com dissected a Wi-Fi+3G iPad, they discovered not three but five antennas, including the frame of the LCD screen designed as a giant antenna.

"... to be sure that human exposure to RF energy does not exceed the FCC, IC, and European Union guidelines, always follow these instructions and precautions: Orient the device in portrait mode with the Home button at the bottom of the display, or in landscape mode with the cellular antenna (located under the black edge at the top of the device) away from your body or other objects..."

This means if you don't handle the iPad exactly as instructed, the RF microwave radiation that connects your iPad to your school Wi-Fi router can exceed ICNIRP' limits for human exposure. Unfortunately, most parents and teachers have no idea about this, and rarely show the kids how to handle iPads safely in the classroom or home setting. I go into this in detail

much later, but imagine what happens when the teacher asks a class of 30 kids to switch on their iPads and open software package x. They immediately put their heads down and stare into the iPads and tap away. As these devices connect to the school Wi-Fi, each child's head is enveloped in a cloud of microwave radiation. If they handle the iPad in the wrong way, it is also likely they have exceeded the SAR value for that device. Schools and particularly, head teachers have a duty of care to look after the physical, mental and emotional well-being of their students. If head teachers and other school personnel do not know any of this stuff, it means they are falling down on the job in providing a safe environment for school children.

In terms of consumer safety protection and safety standards setting, nothing much has changed in the past 30 years because the ICNIRP do not budge from their thermal skin heating test regimes. The significant issue that most consumers face is the lack of upfront knowledge on (a) how to buy a product based on the lowest SAR data and (b) knowing there might be safety issues if that device is incorrectly used and other basic issues of minimising exposure. This is basic safety information which is not available at the point of sale and it should be. The reason it is not there at the point of sale is the 3 trickster monkeys do not want consumers to know a problem exists in the first place.

Similarly, mobile phone companies should be forced to put warning stickers at the point of sale and SAR information clearly displayed on devices. Mobile phone companies should also be encouraged to use minimum transmit powers in their devices so that even with improper use, consumers are not overly exposed by SAR and consequent ailments. If I was a safety regulator I would also require any advertising material, box and the device itself to carry a sticker that says "Warning, this device emits microwave radiation which is a Class 2B carcinogen". I now focus on the ICNIRP, (International Commission on Non-Ionising Radiation & Protection).

The ICNIRP (International Commission on Non-Ionising Radiation & Protection)

Since its inception date in 1992, the ICNIRP has been mired in controversy and the full, much more informative analysis of its early years is eloquently discussed in the annals of Microwave News, (microwavenews.com). I always like to source any information I use from several sources. I use mainstream outlets such as the BBC, Bing, Google and Wikipedia. I contrast their interpretation with the same stories from neutral and alternative media. I much prefer the neutral media sites because they have no agenda to fulfil and do not need to cover up anything. In the final analysis I rely heavily but not exclusively on the alternative media in setting the terrain of ideas I pursue. In fact, the mainstream and alternative media represent opposing views of any argument and as ever, the truth of the situation is somewhere between in the middle. My first point of call on anything factually related to microwave radiation is microwavenews.com because Louis is an old-skool wordsmith with an encyclopaedic knowledge of key personnel and developments within the fields of radiofrequency radiation since time out of mind.

I find the mainstream media treatment of global warming/climate change as baffling as their treatment of anything related to the operation of telecom companies i.e. exposure from microwave radiation and 5G. I find it baffling or should I say I used to feel that way because almost everything they write is back to front, biased or plain wrong. Is it not ironic that the so-called 'fact-checkers' can only be found in the mainstream media. The purpose of the so--called 'fact-checkers' is to cancel or ridicule anyone who speaks against the state narrative. The BBC is expert in this as are most other news media across the globe. Everything, including every word of this book should be taken with a pinch of salt until verified by yourself.
I compare and contrast the mainstream with what actually goes on in the annals of the ICNIRP, PHE and the WHO. This is not speculation nor wishful thinking and based on verifiable facts.

I reproduce a mainstream Wiki page that details the role of the ICNIRP and much is made of its 'financial and industry' independence. The Wiki website goes on to say;

"its advice is requested by many national and multinational organizations such as the European Union (EU). Standard bodies also refer to ICNIRP health protection guidance for setting appliance standards. To preserve its independence from vested interests ICNIRP applies fundamental principles as provided by its Charter and statutes: It does not receive financial support from commercial entities. Its fundings, consist solely of periodical or project grants from national and international public bodies and to a lesser extent of the income derived from its publications and scientific congresses and workshops. The members are not allowed to be employed by commercial entities. To enforce this rule, they are requested to fill in a declaration of personal interests and report any changes as they occur. Declarations of interests are publicly available on the ICNIRP website."

Long story short, in relation to its financial 'independence' I ask the reader to research the activities of its founder from 1992, Michael Repacholi and his financial link up with an Adelaide hospital in Australia. If you are interested in the covert financial backing of the ICNIRP, grab a bag of popcorn, a hot cappuccino and head over to microwavenews.com and punch in Repacholi in the search box!

I am specifically interested in the conflicts of interests between the ICNIRP and top government health regulatory panels, particularly from the UK. I lean on the shoulders of a giant called Dr Susan S. Starkey who made startling discoveries about just how 'independent' the ICNIRP really is. The regulatory framework protecting health within the UK is tasked to PHE (Public Health England). The PHE has undergone a re-brand recently but essentially, the same regulatory framework and personnel are still in place. At the top of this UK regulatory

pyramid lies an influential advisory panel called AGNIR (Advisory Group on Non-Ionising Radiation. I say, it lies at the top of the PHE but it was quietly dis-banded in 2017 due to 'conflicts of interest' issues between itself and the ICNIRP.

One of the Codes of Conduct that govern how PHE operates, states we **"not misuse our official position or information acquired in our official duties to further our private interests and those of others"**. The last official and big review of the AGNIR panel was in 2012 (they were under the HPA, Health Protection Agency) at that time.

The terms of AGNIR are 'to review work on the 'biological' effects of non-ionising radiation relevant to human health and to advise on research priorities'. The aims and objectives of AGNIR from its inception are conflicted and contradictory because they use the word 'biological' and 'non-ionising radiation' in the same breath. The advisory group AGNIR do not recognise 'biological effects' in relation to exposure from non-ionising microwave radiation. Perhaps they use the term 'biological' to refer to the skin burns that result from excessive exposure to microwave radiation. They themselves follow the ICNIRP definition of ionising and non-ionising radiation. Perhaps the point of all that is to confuse citizens on what the purpose of AGNIR is for and what it actually does.

That aside, when this panel carry out a review, its conclusions and recommendations form the bedrock of government advice to other government departments and to other regulators outside the UK. Its advice carries much status within radiofrequency regulatory circles that are subservient to the ICNIRP.

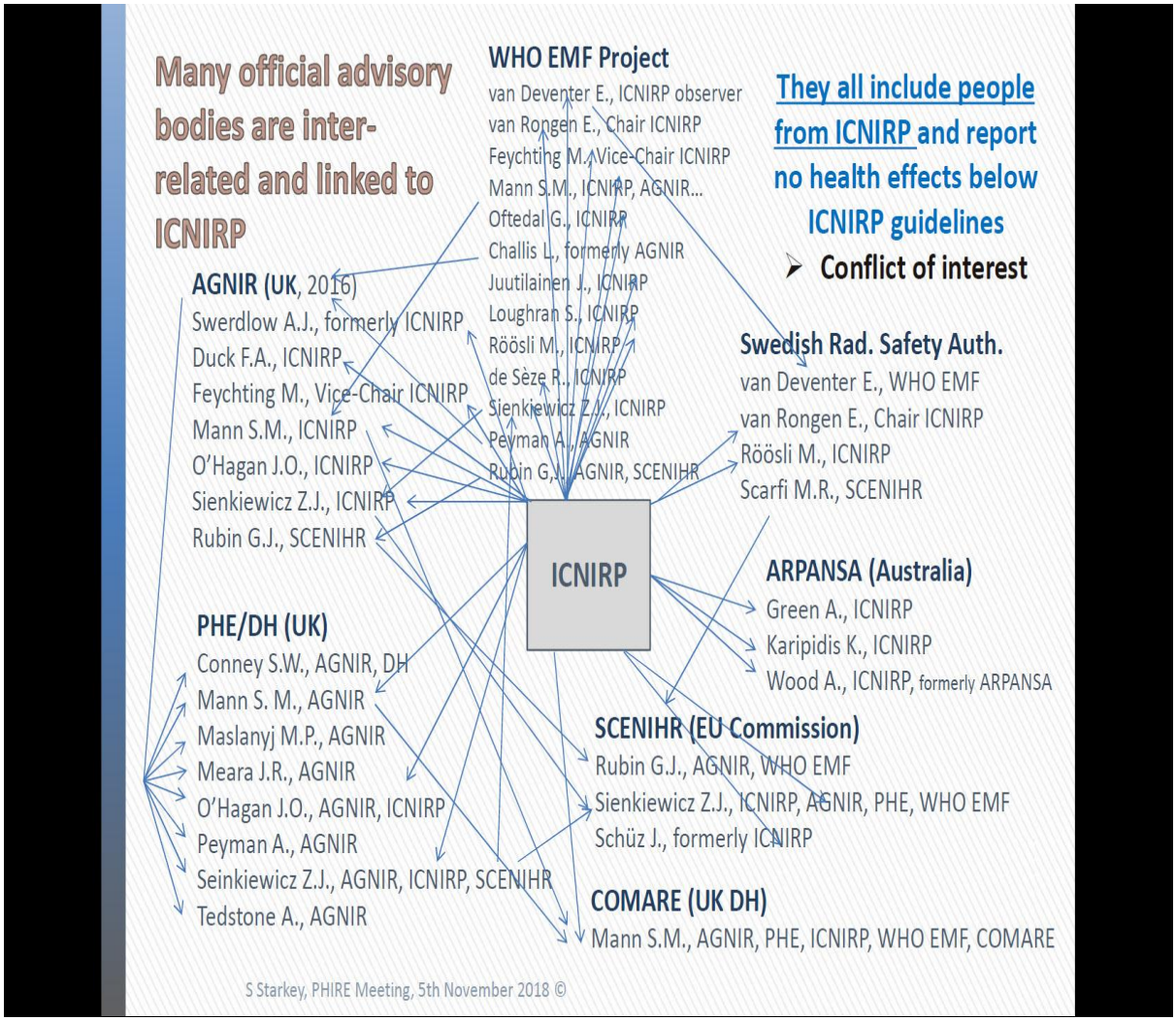
The dynamics between the ICNIRP and PHE's advisory panel, AGNIR should be adversarial. The ICNIRP present evidence, scientific data and information to the AGNIR panel that is related to exposure methodologies, or other issues of safety. The role of AGNIR is to act as independent reviewers and to ensure what the ICNIRP are doing or propose to do is scientifically valid. Public Health England after all is the government appointed body that advises the British government on exposure and safety issues. In effect, personnel from both the ICNIRP and PHE should be at arm's length.

Conflicts of interests laid bare

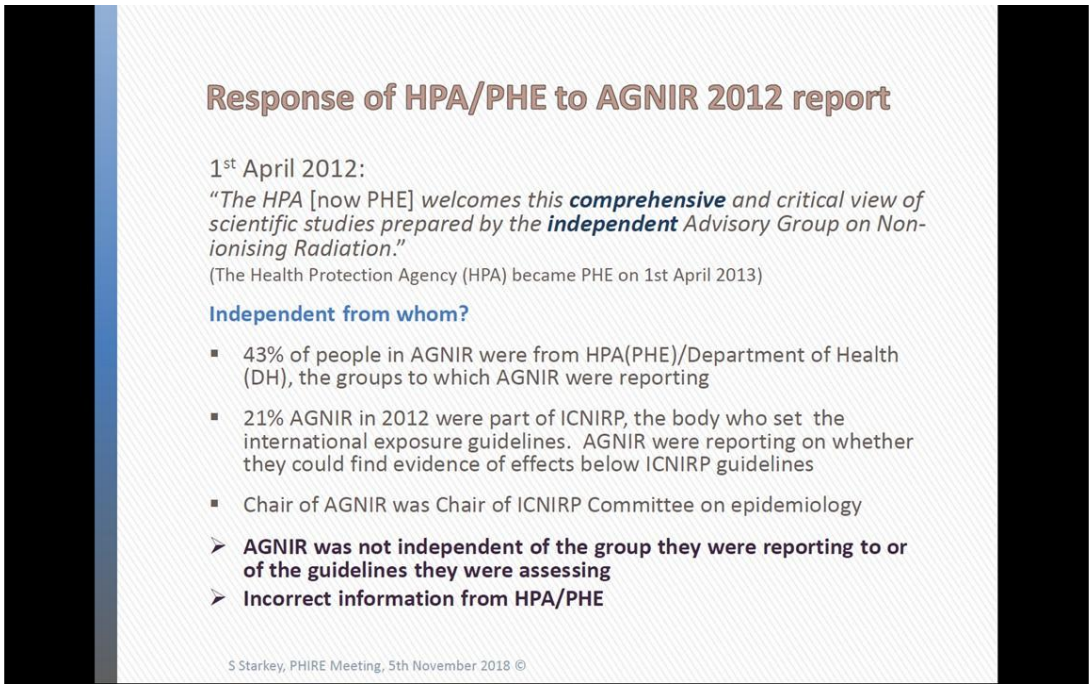
The real world is somewhat different due to a 'revolving door' policy of top personnel walking across the corridors of power between the WHO, ICNIRP, AGNIR and other overseas regulators, especially the Australian health regulator, ARPANSA which exclusively employ ICNIRP former employees. Starkey illustrates the conflict of interest by showing that individuals from both the ICNIRP, the World Health Organisation, (WHO), the AGNIR panel, and government health regulators, including those from other countries working collaboratively as 'one big happy family. Even the EU Commission is part of this corrupt scientific setup. Family members of this regulatory cartel resigned from the ICNIRP and started work for PHE or ARPANSA. Starkey's article is a proper piece of detective work that exposes the dark under-belly of telecoms regulators of all shapes and sizes. Starkey calls it a conflict of interest but I call it a scandal and scientific corruption of the highest order. How can we trust anything that comes out of the mouths of PHE, WHO or the ICNIRP when the same personnel journey between all organisations not simply attending meetings but actually resigning from one organisation and being employed by the very organisation it was supposed to police? Clearly, no-one in this nest of vipers will criticise the very work they just finished

whilst working for the ICNIRP when setting down as head honcho in PHE's dosimetry department.

Conflict of interests and the 'revolving doors' of the ICNIRP, AGNIR and government health regulators, here and abroad


Many official advisory bodies are inter-related and linked to ICNIRP
WHO EMF Project
van Deventer E., ICNIRP observer
van Rongen E., Chair ICNIRP
Feychting M., Vice-Chair ICNIRP
Mann S.M., ICNIRP, AGNIR...
Oftedal G., ICNIRP
Challis L., formerly AGNIR
Juutilainen J., ICNIRP
Loughran S., ICNIRP
Röösli M., ICNIRP
de Sèze R., ICNIRP
Sienkiewicz Z.J., ICNIRP
Peyman A., AGNIR
Rubin G.J., AGNIR, SCENIHR
They all include people from ICNIRP and report no health effects below ICNIRP guidelines
Conflict of interest
AGNIR (UK, 2016)
Swerdlow A.J., formerly ICNIRP
Duck F.A., ICNIRP
Feychting M., Vice-Chair ICNIRP
Mann S.M., ICNIRP
O'Hagan J.O., ICNIRP
Sienkiewicz Z.J., ICNIRP
Rubin G.J., SCENIHR
Swedish Rad. Safety Auth.
van Deventer E., WHO EMF
van Rongen E., Chair ICNIRP
Röösli M., ICNIRP
Scarfi M.R., SCENIHR
ICNIRP
ARPANSA (Australia)
Green A., ICNIRP
Karipidis K., ICNIRP
Wood A., ICNIRP, formerly ARPANSA
PHE/DH (UK)
Conney S.W., AGNIR, DH
Mann S. M., AGNIR
Maslanyj M.P., AGNIR
Meara J.R., AGNIR
O'Hagan J.O., AGNIR, ICNIRP
Peyman A., AGNIR
Seinkiewicz Z.J., AGNIR, ICNIRP, SCENIHR
Tedstone A., AGNIR
SCENIHR (EU Commission)
Rubin G.J., AGNIR, WHO EMF
Sienkiewicz Z.J., ICNIRP, AGNIR, PHE, WHO EMF
Schüz J., formerly ICNIRP
COMARE (UK DH)
Mann S.M., AGNIR, PHE, ICNIRP, WHO EMF, COMARE
S Starkey, PHIRE Meeting, 5th November 2018 ©

The following slide from Dr Starkey's presentation to a PHIRE (physicians' health initiative for radiation and environment) meeting held in London, 2018 show:


Response of HPA/PHE to AGNIR 2012 report
1st April 2012:
"The HPA [now PHE] welcomes this comprehensive and critical view of scientific studies prepared by the independent Advisory Group on Non-ionising Radiation."
(The Health Protection Agency (HPA) became PHE on 1st April 2013)
Independent from whom?
43% of people in AGNIR were from HPA(PHE)/Department of Health (DH), the groups to which AGNIR were reporting
21% AGNIR in 2012 were part of ICNIRP, the body who set the international exposure guidelines. AGNIR were reporting on whether they could find evidence of effects below ICNIRP guidelines
Chair of AGNIR was Chair of ICNIRP Committee on epidemiology
AGNIR was not independent of the group they were reporting to or of the guidelines they were assessing
Incorrect information from HPA/PHE
S Starkey, PHIRE Meeting, 5th November 2018 ©

The corrupt personnel 'revolving door' between the ICNIRP and AGNIR and WHO must have been very embarrassing for the British Government/ICNIRP/WHO because shortly after these dealings were exposed, AGNIR was quietly dis-banded. The influential AGNIR advisory panel commenced its work in 1990 with a with a 30 year history behind it. Many of its members throughout the years were also involved at advisory level in issues of ionising radiation i.e. radioactive discharges from nuclear licensed sites within the UK.

As a civil servant myself involved in ionising radiation regulatory departments, I recognise several names from the AGNIR advisory panel who were major players in the ionising radiation field and the UK ionising and non-ionising radiation fields are very small in terms of personnel.

Radiofrequency radiation has always been a hotly contested topic both here and abroad yet it is still difficult to make any sense for what is actually happening because the people employed to ensure our safety and well-being appear to be from a different planet in terms of consumer safety! Dr Starkey's document (EBM_Final_v4_10-13-11-1.pdf) is still available for download and it confirms what many people have suspected for years, the ICNIRP and UK health regulators including regulators in other countries, busy themselves keeping quiet on adverse biological effects by focussing solely on thermal skin heating effects. They already know that exposure to microwave radiation causes cancer and if they actually commissioned research work to focus on non-thermal effects, they would not be in their present jobs too long.

The missing half of the equation i.e. non-thermal adverse biological effects in relation to exposure to microwave radiation and consumer safety is now discussed and unlike the early years of radar development and mostly military reviews, there is so much to say and in order to be brief and concise I just focus on a few studies.

I discuss the NTP (National Toxicology Programme) rodent cancer study separately in chapter 4. These data represent significant, gold-standard ‘‘clear evidence’’ that exposure to microwave radiation causes DNA strand breakages, cancer causation and a multitude of other biological effects. In other words, it is clear that the basis of the ICNIRP setting exposure standards on thermal effects is clearly, *nonsense*. Even though the evidence is out there, most physicists still believe that radiofrequency radiation up to 300 GHz are incapable of breaking molecular bonds! Some would even argue that to believe exposure to microwave radiation is ionising is nothing more than a conspiracy theory. I argue later that it is conspiracy fact because the data is peer-review published and it was carried out by the prestigious NIH (National Institute of Health) whose reason for existence is to assess all sorts of chemicals, substances and technologies for toxicological profiling, for and on behalf of the US government. In 2020, the ICNIRP reviewed its safety guidelines on thermal effects looking at peer review scientific data. This next bit is interesting and I reproduce the complete abstract below. The article below shows ‘clear evidence’ the ICNIRP justify their review almost exclusively within their own in-house scientists and regulatory panels. The peer review article can be found here:

Self-referencing authorships behind the ICNIRP 2020 radiation protection guidelines
Else K. Nordhagen and Einar Flydal, From the journal Reviews on Environmental Health
https://doi.org/10.1515/reveh-2022-0037

“Abstract

In March 2020, ICNIRP (the International Commission for Non-Ionizing Radiation Protection) published a set of guidelines for limiting exposure to electromagnetic fields (100 kHz to 300 GHz). ICNIRP claims this publication’s view on EMF and health, a view usually termed “the thermal-only paradigm”, is consistent with current scientific understanding. We investigated the literature referenced in ICNIRP 2020 to assess if the variation in authors and research groups behind it meets the fundamental requirement of constituting a broad scientific base and thus a view consistent with current scientific understanding, a requirement that such an important set of guidelines is expected to satisfy. To assess if this requirement has been met, we investigated the span of authors and research groups of the referenced literature of the ICNIRP 2020 Guidelines and annexes. Our analysis shows that ICNIRP 2020 itself, and in practice all its referenced supporting literature stem from a network of co-authors with just 17 researchers at its core, most of them affiliated with ICNIRP and/or the IEEE, and some of them being ICNIRP 2020 authors themselves. Moreover, literature reviews presented by ICNIRP 2020 as being from independent committees, are in fact products of this same informal network of collaborating authors, all committees having ICNIRP 2020 authors as members. This shows that the ICNIRP 2020 Guidelines fail to meet fundamental scientific quality requirements and are therefore not suited as the basis on which to set RF EMF exposure limits for the protection of human health. With its thermal-only view, ICNIRP contrasts with the majority of research findings, and would therefore need a particularly solid scientific foundation. Our analysis demonstrates the contrary to be the case. Hence, the ICNIRP 2020 Guidelines cannot offer a basis for good governance.”

Non-thermal effects:

I follow the same format as before in reporting data. I focus mostly on conclusions and weight of evidence to keep it brief. I include this section to simply say, there are scientists out there who wish to understand the natural world by following the scientific method. The literature on

non-thermal effects grows with each passing year and its patterns of biological harm cannot be ignored by the ICNIRP any longer. I guess the best place to start is with the designation that exposure to microwave radiation was classified by the IARC of the WHO in 2011 as a Class 2B carcinogen.

*"Lyon, France, May 31, 2011 -- The WHO/International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as **possibly carcinogenic to humans (Group 2B)**, based on an increased risk for **glioma**, a malignant type of brain cancer, associated with wireless phone use….*

The IARC Monograph Working Group discussed and evaluated the available literature on the following exposure categories involving radiofrequency electromagnetic fields: occupational exposures to radar and to microwaves; environmental exposures associated with transmission of signals for radio, television and wireless telecommunication; and personal exposures associated with the use of wireless telephones.

*International experts shared the complex task of tackling the **exposure data**, **the studies of cancer in humans**, the **studies of cancer in experimental animals**, and the **mechanistic and other relevant data**.*
Conclusions
*Dr Jonathan Samet (University of Southern California, USA), overall Chairman of the Working Group, indicated that "the evidence, while still accumulating, is strong enough to support a conclusion and the **2B classification**. The conclusion means that there could be some risk, and therefore we need to keep a close watch for a link between cell phones and cancer risk."*

Part of the dataset looked at by the IARC included probably, one of the most talked about research studies in 2010 on exposure to microwave radiation and brain cancer incidence. This was a 13 nation case-control study of heavy users of mobile phones. This study found that the top 10% of users with increased risk of brain tumour i.e., malignant glioma. The study itself can be freely downloaded here:

https://academic.oup.com/ije/article/39/3/675/631387?login=false

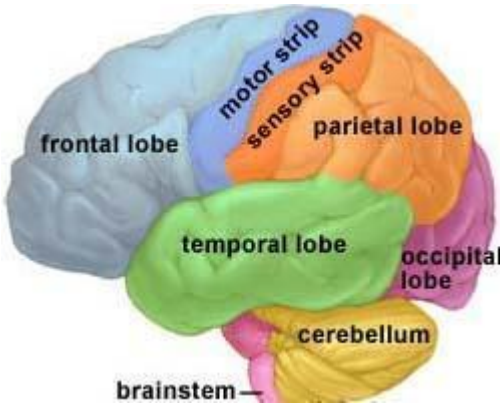
If we fast forward to 2017, I wrote an article based on data gleaned from several data sources from microwavenews.com. The link is here: https://www.naturalblaze.com/?s=deadly+brain+tumours

"*Rates of glioblastoma multiforme (IV), an aggressive and deadly form of brain tumour, are increasing in the UK, US, Netherlands, Sweden, and Denmark. This is ominous because as in smoking and cancer induction, a certain time span is required before cancer sets in the body and is recognised as such by medical and scientific bodies. No one is really sure on the latency period between exposure to microwave radiation emitted from cell phone and WI-FI router antennas and the induction of carcinogenic processes within the body.*

Maybe it is between 15 – 25 years for heavy users and God-knows how long for casual users. The real point of this article is that these data are starting to come in from all corners of the globe and these epidemiological and medical studies are all statistically significant. In other words, these data show causal effect and are not due to chance or probability.

***Figure 1** shows various regions of one side of the head which comes into intimate contact with microwave radiation from mobile phone usage.*

Figure 1: Regions of the brain



The list below gives a breakdown on properties of brain tumours associated with the use of mobile phones. Brain tumours are abnormal tissue that grows from certain types of body cells. Tumours can also be called neoplasms or lesions and are either benign or malignant. In general terms, benign tumours grow slowly whilst malignant tumours grow quickly. Because brain tumours grow within a bony skull enclosure in which there is no room for growth, all of these types of tumour are life-threatening.

Gliomas: most common types of malignant brain tumours usually found in the frontal and temporal lobes of the brain.
Glioblastoma multiforme (IV): most virulent and deadly type of brain tumour
Neoplasms of the parietal lobe and temporal lobes
Meningioma: most common (mostly) benign tumour that usually develop in layers of tissue that surround and protect the brain and spinal cord
Acoustic neoplasms: tumours that grow in the inner ear close to the brain and in removing these types of tumours, it is necessary to remove the acoustic nerve resulting in deafness in that ear".

How about this one published in The International Journal of Oncology in 2015[8]

*"**Abstract***
Quickly changing technologies and intensive uses of radiofrequency electromagnetic field (RF-EMF)-emitting phones pose a challenge to public health. Mobile phone users and uses and exposures to other wireless transmitting devices (WTDs) have increased in the past few years. We consider that CERENAT, a French national study, provides an important addition to the literature evaluating the use of mobile phones and risk of brain tumours. The CERENAT finding of increased risk of glioma is consistent with studies that evaluated use of mobile phones for a decade or longer and corroborate those that have shown a risk of meningioma from mobile phone use. In CERENAT, exposure to RF-EMF from digitally enhanced cordless telephones (DECTs), used by over half the population of France during the period of this study, was not evaluated. If exposures to DECT phones could have been taken into account, the risks of glioma from mobile phone use in CERENAT are likely to be higher than published. We conclude that radiofrequency fields should be classified as a Group 2A •probable• human carcinogen under the criteria used by the International Agency for Research on Cancer (Lyon, France). Additional data should be gathered on exposures to mobile and cordless phones, other WTDs, mobile phone base stations and Wi-Fi routers to evaluate their impact on public health. We advise that the as low as reasonable achievable (ALARA) principle be adopted for uses of this technology, while a major cross-disciplinary effort is generated to train researchers in bioelectromagnetics and provide monitoring of potential health impacts of RF-EMF.

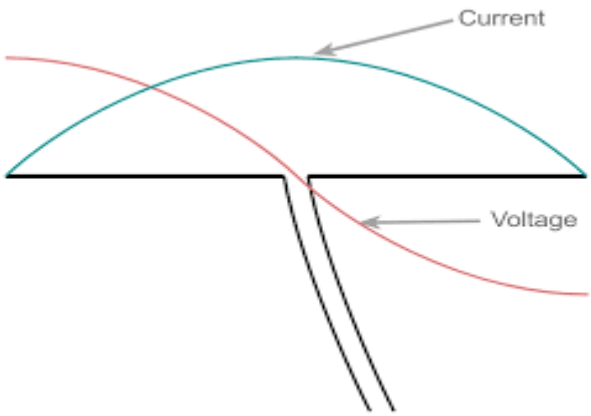
I also have a 500 page abstract of relatively recent (2010 onwards) peer review articles on non-thermal biological effects carried out by researchers across the globe and the point of all this is to simply say, all of this data is routinely ignored by the ICNIRP. The ICNIRP has never carried out non-thermal biological effects research nor have they funded this type of research to any of their thermal heating contractors. The 500 page study pdf can be downloaded by contacting me at: ellisevans369@gmail.com

I now move onto the technologies of wavelength, frequency and energy at microwave frequencies. I have a keen interest in what follows because (a) I believe life is based on energy, frequency and vibration and (b) I have been a licensed radio ham since 1985 and have a good understanding of how signals bounce around the environment. I promise to keep everything as brief as possible and to focus only on that which is absolutely necessary in advancing our understanding in how to protect ourselves from microwave radiation.

Chapter 3: Wavelength, frequency, energy and signal propagation

I discuss frequency, wavelength, radiofrequency energy, antennas and how microwave signals move around the environment. I finish this section with data from a radiometric survey study and discuss what happened to residents in a high rise apartment block when telecoms installed radio masts within a few hundred metres of their building. In any situation involving the movement of microwave radiation, it is important we understand something about how much RF (radiofrequency) energy is being transmitted and how signal strength varies with distance from antenna mast. This section of chapter 3 will also act as a primer when looking at the unique and biologically-damaging frequencies of 5G. These frequencies will be discussed in a later chapter.

Figure 3 illustrates important characteristics of a radio wave signal



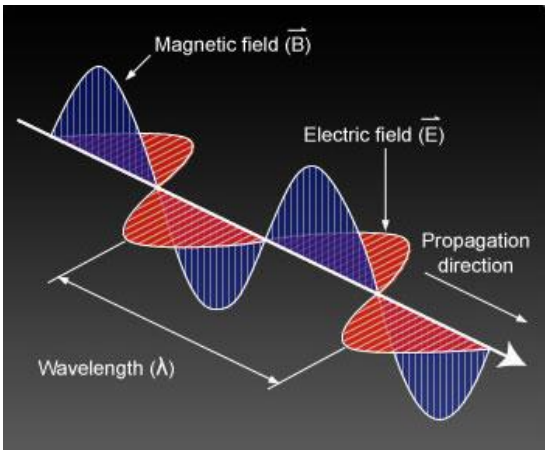
With reference to Figure 3, a radio wave has two fields of energy at right angles to each other. These are called the **E** and **B (I call this M for magnetic)** fields. The **E** field is the electric field and the **M** field is a magnetic field. We measure the E and M fields with an EMF or *electrosmog* meter. The important thing to remember is that EMF meters are relatively expensive to buy and there are much cheap alternatives. . There are lots of EMF websites out there, yet, I must add a caveat, when 5G is universally rolled out, if it ever happens, we will feel that radiation almost straight away. Secondly, there is a very cheap alternative to buying an EMF meter and this will be described in detail later on.

We can also use the term, EMF (***E***lectro***M***agnetic ***F***requency) to describe a radio frequency. The E and M fields act as one, in other words, if you have a very strong electric field, you will also have a correspondingly high magnetic field. Conversely, a radio signal with a weak E field also has a weak M field. That applies to most environmental situations but from time to time you will get low E fields with high M fields and this is related to the different absorption characteristics of the material the radio wave is passing through. The signal strength or intensity of a radio signal is *inversely proportional to its distance from an antenna*. If you live within 200m of a mobile phone mast for example, it is potentially, more biologically-damaging than if you live within 2 km of the same antenna mast. In general, the closer you are to a mast, the higher the signal from the mobile mast antenna. The flux or power density of a radio signal repeats itself at the end of each wavelength of travel. As the radio signal travels away from the antenna, it becomes weaker. Thus, the signal strength of a radio wave **decreases** with **increasing** distance from a radio mast antenna. There are exceptions to this general rule and I will cover these in detail under ‘propagation’.

With reference to the radio wave illustrated in Figure 3, the strength of the E and M fields vary along the radio wave. The greatest intensity of signal occurs halfway along the wavelength and when the electrical field is high, the magnetic field is low and vice versa.

You can visualise the wavelength of a radio signal through Figure 4. The point of the two peaks or highest electric fields (red curves) equals a wavelength. This is important to understand for later on because the shorter the wavelength, the greater the power density of the **E** and **M** fields. The greater the power density of the E and M fields, the more probable these frequencies will cause us biological damage.

Figure 4: Wavelength distance



This next bit is important, especially within the context of 3G, 4G and 5G frequencies in relation to biological safety.

Wavelength and radio frequency energy

If you own a portable radio there are usually 4 band switches that point to the longwave, shortwave, medium wave and FM frequencies. The F.M. (frequency modulation) frequencies are known as VHF or Very High Frequencies. Most commercial music stations in the UK operate at a frequency around 95.8 MHz. Each band of radio frequencies have their own characteristic wavelengths.

Imagine we have a radio transmitter with a power output of 20 watts and the antenna is at a height of 25 metres above ground level. The amount of energy transmitted i.e. 20 watts at a specific frequency, is 'contained' within the distance of one wavelength. For instance, the wavelength of your favourite F.M. (frequency modulation) local radio station at 95.8 MHz is about 3 metres long. The 20 watts of transmit power will travel along the wavelength for a distance of 3 metres and the power of that signal will rise and fall and then rise and fall again and again. Each successive wavelength radiates away from the antenna and as it does so, it becomes progressively weaker until the signal strength 'dips' below the level at which it can be heard from the radio speaker. Thus, you can visualise that as the signal moves away from the antenna it gets weaker and weaker. The signal is still there and propagating away from its source, yet it is now un-detectable. In other words, even though we cannot measure these radio waves, they still continue their journey. Theoretically, the oracles of Shakespeare although undetectable to us from all those years ago may still be heard by cosmic alien races with

different auditory capabilities and/or different types of measuring instruments. That is what happens for FM signals and the antennas for this band are approximately 1.5 long.

If we have the same transmit power of 20 watts transmitted at a *longwave* frequency of 250 kHz, its wavelength is approximately, 1200 metres long. The same transmit power for a *mediumwave* station at 1606 kHz has a wavelength of approximately 187 metre distance and of course, any radio signal repeats itself *ad infinitum*. The important thing to remember at this stage is the 20 watts of power contained within one wavelength of 3 m long is more energetic or has a greater power density flux of **E** and **M** fields compared the same 20 watts of power distributed along the length of a longwave frequency which has a wavelength of 1200 m. The size of antenna for the longwave frequencies are approximately 600 m long and the size of antennas for the mediumwave band is approximately 93.5 m long. You can work out an approximate size of antenna by halving the wavelength distance.

It is important to understand 'wavelength' and same transmit power at different frequencies because it gives you an idea of the radio frequency energy contained within one wavelength of that radio signal. Clearly, the amount of radio frequency energy in a longwave radio signal *wavelength* is much smaller compared to a signal in the microwave region which has a much smaller *wavelength*!

If we look at a few examples of common mobile telephony frequencies and corresponding wavelength, we can compare all these high frequencies with lower frequencies. We must also note, that even though we have used radio in its present form, close to 100 years or so, the use of any radio signal at any frequency is not without risk. In this respect, I detail this later in relation to 'dirty electricity' and the body-electric'. We must also remember that the use of microwave radiation in mobile telephony is less than 30 years, yet already, we are beginning to catalogue an avalanche of peer review scientific data of biological damage from exposure to microwave radiation.

Frequency and wavelength

This next section compares the amount of energy contained within the wavelength of a radio signal at different frequencies. This is probably the simplest analogy I can think of in getting across the message that exposure to radio signals this high in frequency is bad news for the biological safety of the human race. The easiest way to visualise what is going on in the field of mobile telecommunications is to buy an EMF meter (or its alternative) and from a distance of about 400 m, walk up to the mast. That simple realisation may change everything you ever thought about what is going on, simply because you have in your hands, evidence of a 'silent killer' which evades our 'fight-flight' response because it has no colour, no smell or trace of its emissions.

Mobile phone technologies employ 2G, 3G and 4G frequencies at:
900 MHz radio signal having a wavelength of 0.33 m or 33 cm
1800 MHz radio signal having a wavelength of 0.167 metres or 16.7 cm
2.4 GHz radio signal having a wavelength of 0.125 metres or 12.5 cm
5.0 GHz radio signal having a wavelength of 0.06 metres

The government agency, OFCOM flog off bits of the electromagnetic spectrum to the telecommunications industries. If you want to know which bands of frequencies are most likely to be used for 5G, keep an eye on OFCOM's website. The OFCOM spectrum auction

has not yet started (as far as I know) for 5G frequencies, but to give a taster for the relationship between frequency, energy and wavelength, *a 'typical' 5G frequency at 25 GHz radio signal has a wavelength of 1.2 cm*. If you think about how small this wavelength is in comparison to an F.M. wavelength of about 3 m and it gives an idea just how tightly compressed the power density flux of **E** and **M** fields in 5G products. If you compare the wavelength of a 25 GHz wavelength to a longwave frequency wavelength at about 1200 m long, it gives much clarity on what we the people will have to deal with come 5G products.

Similarly, if we compare the wavelength energy spectrum between a medium wave broadcast and a Wi-Fi router operating at 2.4 GHz we find differences in wavelength of 187 metres for the broadcast band versus 12.5 cm for the Wi-Fi router. In other words, the radio signal exposure differences between low frequency and microwave radiation signals are huge. This is because the smaller the wavelength, the greater the 'intensity' or power flux density within that particular wavelength if we keep the transmit power at the same level. Lest we forget, most individuals switch their radios on and off several times a day, yet, the Wi-Fi router is switched on 24/7, 365 days per year. That is the nub of the problem, the majority of consumers are exposed to extremely high levels of microwave radiation, all year round. The real question is, how many people do you know, hard-wire their Wi-Fi router connections because they understand the dangers from exposure to microwave radiation.

The ICNIRP issue guideline advice to government health regulators up to frequencies of 300 GHz. In other words, they offer the same consumer safety advice for 5G frequencies as they do for current 2G, 3G and 4G frequencies. I repeat, the ICNIRP has not carried out one single piece of non-thermal biological effect research. The ICNIRP are physicists with an agenda. That agenda is to provide safety data on thermal effects only and to ignore biological effects. The ICNIRP has no medical advisory panel or anyone who can tell them anything about blood disorders such as leukaemia and other cancer types. That said, frequency, wavelength and signal 'intensity' are just one part of the safety equation we must consider. There are two areas we must look at and they both flow effortlessly and literally from each other, they are, antennas and propagation.

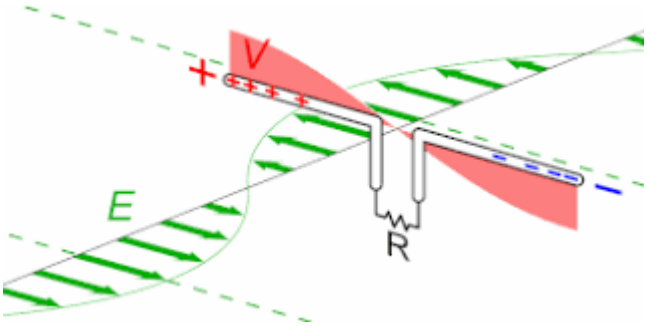
Antennas:

Antennas come in all sorts of shapes and sizes and in order for antennas to radiate a signal efficiently, all of them follow basic radiofrequency principles. In this section I focus purely on mobile telephony antennas as a means of radiating and receiving signals. This is followed by discussion of 'propagation' and what happens to a radio signal as it begins its journey into the environment. I briefly discuss, dipole and monopole or Marconi antennas because both types are widely used in mobile telephony infrastructure. You can skip the technical aspects of antennas because they are less important than the following propagation section. I also include images of telecom antennas so that you can identify them as you walk or drive around! There are lots of antenna parameters that define theoretically, how well that antenna may work. All antenna parameters and RF glossaries can easily be found somewhere on the Internet. I also skip many aspects of Maxwell's work on electromagnetism and focus purely on practical aspects of the how and why of antennas.

Heinrich Hertz developed from Maxwell's equations of electromagnetism, the dipole antenna. There is a relationship between the physical sizes of an antenna relative to its wavelength. If we look at Figure 3, we can see that the point of maximum radiation or antenna efficiency occurs at a point called its 'half wave' dimension. The half wave point of an antenna is half the physical dimension of its wavelength at that frequency. The dipole antenna below shows two pieces of aluminium split in the middle with the symbol 'R' at the base of the dipole antenna. The symbol 'R' represents what is called a 'low impedance match from 36 - 72 ohms. This is the point where you connect the antenna coax that goes between your antenna and device, be it a TV radio or citizens band transceiver. One side of the coax goes to the element in front and the other side of the coax cable connects to the other element behind. This is the point at which maximum current is generated whilst at the same time minimum electrical voltage is present.

For example, the wavelength of a 2.4 GHz Wi-Fi router has a wavelength of 12.5 cm. A half wave of antenna at this frequency is 6.25 cm long. We divide the half wave dimension by two to produce two quarter wave aluminium elements, 3.125 cm long. That is the basic setup for most antennas and regardless of type, efficient antenna design is tied back to a dipole design which illustrates the distribution and power flux density of E and M waves along an antenna wavelength.

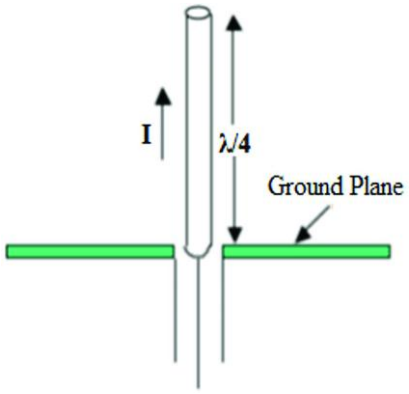
Figure 3: Dipole antenna basics



The basic take-home message in this section is that any antenna we see whether it is TV, police, taxi or ambulance services are designed to work efficiently and specifically at its

operating frequency. It is basic RF physics and regardless of design and size, they work from a common template, that of a dipole in the horizontal or vertical orientation. Before I illustrate mobile phone antenna types I describe another widely used antenna type called a ground plane or Marconi antenna.

Figure 4: Monopole or vertical antenna



If we bear in mind that all antenna types are designed to follow the power flux density distribution outlined in Maxwell's equations, the monopole is a similar design with two variations. The first quarter wave of a monopole 'I' is oriented vertically and the second half of the monopole can be represented via a ground plane (green bars beneath the vertical element) which are one quarter wavelength long. I also call these types of antennas, white stick types.

Typical antenna design used in mobile phone handsets

The wavelength of the microwave bands is very short and the physical size of mobile phones antennas lie within the range of several centimetres. These antennas can simply be made of fixed strips of aluminium. That said, mobile phones operate over several frequencies e.g. generally around 900 MHz, and 1.8 GHz. When you raise the operating frequency of a mobile phone, the smaller its physical size. As the physical size of antennas decreases, their relative capture area also decreases. The various antennas must also be matched to their frequency of operation and besides automatic switching of antennas to frequency, there must also be a means of ensuring that as antenna efficiency drops (for whatever reason), the output power of the phone decreases accordingly. The technology behind these devices is complex and beyond the scope of this article. Suffice to say that antennas and their operation need to be well thought out because if the wrong antenna is switched in during transmit or the antenna itself shorts across itself, transmitted power will flow back down the antenna and heat up the mobile phone itself. This obviously means that if the mobile phone is next to your skull, this part of your face will also heat up beyond power densities that were authorised. A typical design is shown below.

Figure 5
Mobile phone antenna design

Many mobile phone uses an antenna called an IFA or inverted F antenna. If you look at the drawing on the right from Figure 7 you can see the big copper coloured area comprising the ground plain and at the bottom of this is a strip of metallic wires in the shape of an F that has been rotated 90 degrees to its left. This particular antenna is a dual band antenna via a shorting arm to enable it to be used at 900 MHz and 1.8 GHz frequencies.

I often wonder about this type of antenna design which uses a strip of foil to act as ground plane. Does the headphone ground lead connect to the antenna ground plane and if it is does it may form part of the antenna system. Two things will occur, (a) the antenna impedance may change i.e. the voltage standing wave ratio (VSWR) might be inductive or deductive and (b) the mis-match in antenna impedance may induce a consequent rise in heat within components of the PA (power amplifier) stages of the headset. This is not a good scenario if the phone is pushed against the skin when in use. A similar effect may occur with those who wear metal jewellery in their ears whilst using a mobile phone. The ear stud/ring may affect antenna impedance because of an increase in inductance which may affect antenna VSWR.

Figure 6 gives a glimpse of what is found inside the outer case of a mobile base station antenna. There are 3 transmit antennas and 6 receive antennas around each sector (see real-life image below).

Figure 6: Sector antenna

Mobile phone transmitting antennas

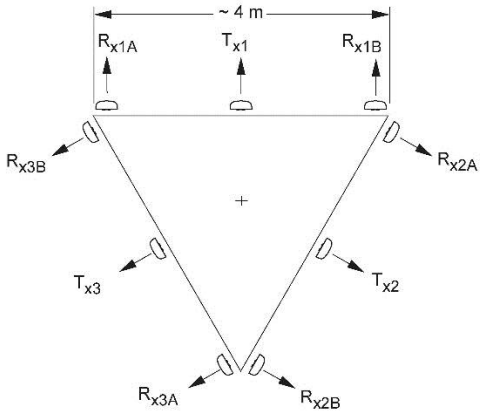


Figure 6B

Sector antennas are so-called because these types of antennas are directional with a beam width between 60 degrees and 90 degrees. They are mounted on a tower in a particular way because each sector of 120 degrees has 3 antennas, normally one transmit antenna in the middle and two receive antennas either side (see Figure below). Note, RX means receive antenna and TX is the transmit antenna. Sector antennas are normally tilted with respect to ground

Figure 7

400 MHz TETRA base antenna used by UK police force

Figure 7 illustrates a typical TETRA antenna setup you find atop a police station roof or literally, any radio mast or apartment building located on high ground. I go into detail on the TETRA emissions in a later chapter due to a spate of unusual occurrences in Bridgend, Wales some time back.

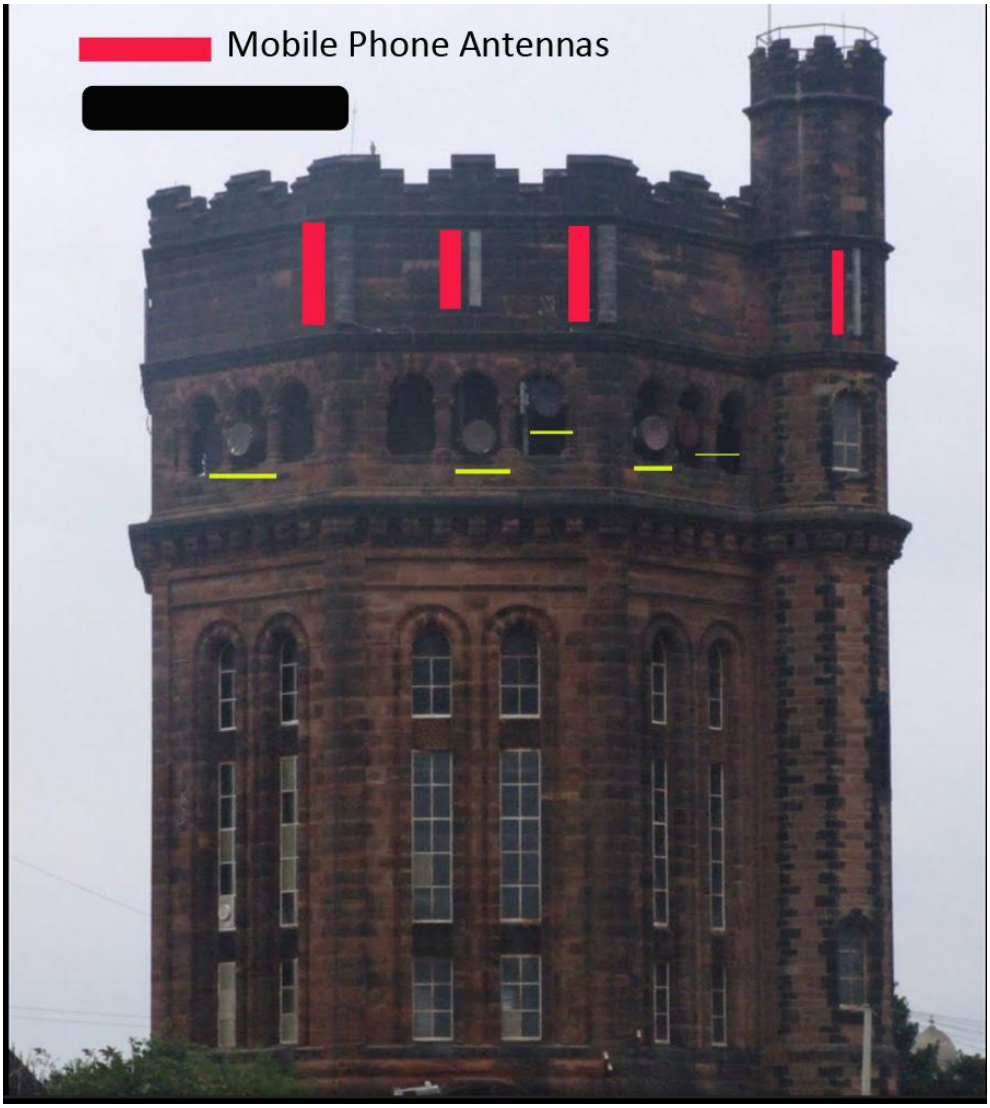
The efficiency of almost any antenna is enhanced if you can mount it as high as possible. In many towns and villages across the UK and in return for a fee, church buildings are the perfect spot for the telecoms companies to mount their antennas

Figure 8: Telecoms sector antennas atop a church roof, UK

In 2015 I sent a dossier of protest which included several peer review studies on adverse biological effects from exposure to microwave radiation to the Archbishop's Council Church House, London. I asked them why they allow the telecoms companies to install mobile phone masts on their buildings. I understand they get a fee for doing this but the response I received was non-committal and they said nothing. I genuinely believe that many of the organisations and entities who receive monies from the telecom giants by allowing them to install mobile phone masts have absolutely no idea about the biological damage these installations cause. They literally, appear frozen in the headlights of a car when asked about biological safety or anything outside their remit.

I also asked the same question for the people responsible in looking after the heritage of the buildings within England. I am still awaiting their response. The following image illustrates mobile phone sector antennas with associated mobile phone satellite relay dishes

Figure 9
Spot the mobile phone antennas atop this historical monument of a water tower in the Wirral UK



The next image is a mobile phone mast that is installed in such a way, that it is hard to see because it is camouflaged. If the environment is concrete grey, paint the mast grey because its colour blends within an urban landscape.

Figure 10
Mobile phone mast in a high street near you

Figure 11:
If the environment is green, paint the mast green

If you have ever driven along a stretch of motorway and noticed something odd, but cannot figure out what is amiss, check out one example of a mobile phone mast that identifies itself as a tree!

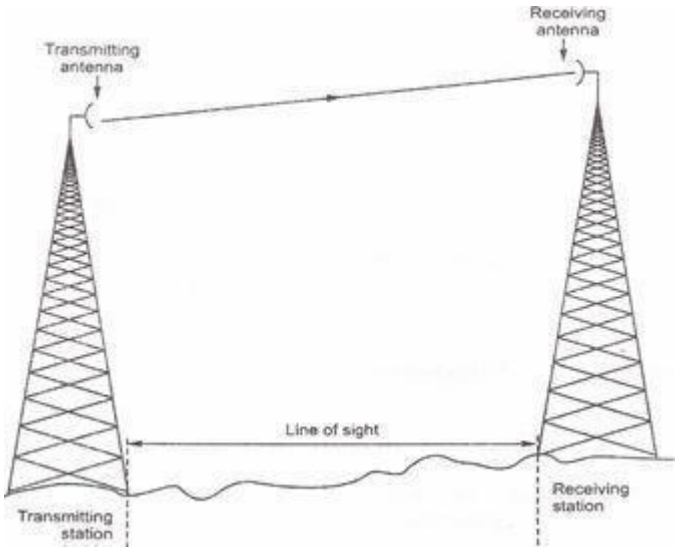
Figure 12
Artificial tree

Signal Propagation

To briefly recap, I have discussed wavelength, frequency, energy and basic antenna types. I next discuss what is called, 'propagation' or how signals travel within the environment. This next section is the most difficult topic to discuss because there are lots of environmental variables that effect signal propagation in all sorts of ways.

Within amateur radio and telecommunication circles, "height is might". This means you install your antennas as high as possible. Next time you walk around in nature, especially near peaks and hills, observe where all the telecommunication masts are sited. They are usually installed up high and in the open and rarely, at the bottom of a valley. The telecommunication companies pay high dividends (or used to) to install their transmitting equipment to land-owners, church leaders and organisations like English Heritage. The reason is simple, from VHF frequencies upwards i.e. from about 144 MHz and above, antennas radiate and propagate their signals outwards in all directions. If the antenna is out in the open it means the radiation pattern might approach what is called 'free space' propagation i.e. about as perfect as you can get from an antenna that receives or transmits signals. Farmers who are also land-owners satisfy the types of environmental conditions the telecoms companies look for when installing masts – they are out in the open, (usually) high up but close enough to towns and villages to ensure lots of customers. As discussed earlier, churches and organisations like English Heritage are also huge beneficiaries of the telecommunication industries because their premises guarantee a good 'take-off for all radio signals. Telecoms companies always like to install antennas in places where the company is guaranteed a strong, all-round signal with plenty of potential consumers just waiting to sign up. No telecom company wants to have the reputation of only operating in urban areas, these companies want good reception everywhere to everyone.

Figure 13
The perfect pitch – line of sight transmission

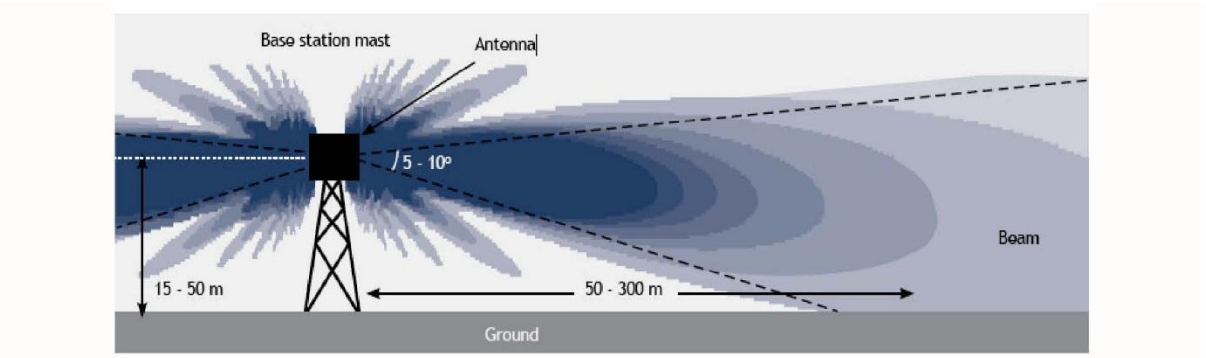


Line of sight communications between a transmitting antenna at one end of the valley to another antenna miles away. Signal strengths are good both ways because there is little in

between the two antennas. That is the main reason why telecoms companies always site their antennas as high as possible. Look at apartment buildings here and abroad, particularly in cities like Paris, France and you see a bloom of antennas i.e. height is might'.

Figure 14 illustrates a typical radiation pattern from a mobile phone transmitter. These ideas will be developed later in this article but for now we need to visualise and understand the shape, pattern and distribution of a radio wave as it is emitted from a mobile phone tower. Figure 14 also illustrates signal intensity i.e. the most intense signal is represented by the dark blue areas and signal intensity decreases for the lighter blue areas with distance from the transmitting antenna.

Figure 14
Typical radiation pattern from a mobile phone mast, (Kumar et al 2011)

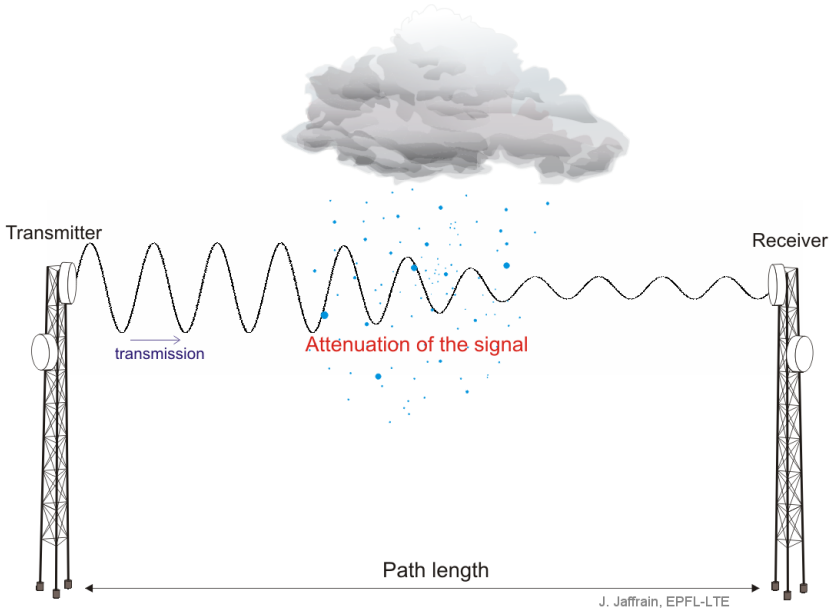


The first thing to mention is that the majority of the radiated signal is within 10 degrees relative to the horizon. This ensures good coverage of the intended area i.e. straight out and below the mast base. The signal strength immediately below the base is weaker relative to say 25 metres away from the antenna. This is because the radio signal needs a few metres to develop in intensity. Highest signal intensities occur between 50 m – 300 m from the transmitting antenna. Signal strength from the mobile phone mast antennas obeys the inverse square rule i.e. signal intensity decreases with distance from the transmitting antenna. Also note that sector antennas incorporate a tilt of 5 degrees towards the ground relative to the horizon.

In a perfect telecommunications world, the physical conditions for efficient operation of signals emitted in the microwave spectrum are (a) height and (b) nothing between the transmitting antenna and the receiving antenna of your mobile phone. Antennas work within the concept of *reciprocity*, i.e. the transmission and reception efficiency of signal remain the same. If you receive a good signal from a phone mast antenna, you will also be able to transmit into it as well.

The reality within most urban environments or if you live in an area of fringe reception mean that radio signals can be lost, enhanced or find themselves somewhere in-between. This is due to all sorts of variables of the built environment and of course, atmospheric and weather conditions.

Figure 15
Rain-scatter and attenuation of microwave frequency signals



Rain-scatter usually results in attenuation of microwave signals, particularly from 5.7 – 10 GHz. The attenuation is related to water vapour particle size and its relationship to wavelength. Some microwave frequencies are more affected than others but in terms of mobile phone operational consistency, rain-scatter is problematic. Radio amateurs who use the microwave bands like to 'play' when rain cells gather over their head. They simply point their antennas towards the rain and give a shout. Particles of water usually absorb microwave radiation, thus attenuating it but other effects such as enhancement of signal with 'raspy' sound effects on the transmitted audio may occur as well.

Tropo-scatter

Microwave radiation may also be affected by 'tropo-scatter'. The layer lowest to the ground which extends upwards in the atmosphere is known as the troposphere. Tropo-scatter results in distortion and attenuation of signal between sender and receiver. This is because the radio wave experiences very small changes in the refractive index. The refractive index defines, absolute temperature, atmospheric pressure, partial pressure and water vapour content. These changes in the refractive index may divert the path of a radio signal i.e. slowing the radio wave down, resulting in distortion or loss of signal. The unpredictable nature of trop-scatter is not good for the telecoms companies because they want reliable two-way communications across their networks at all times regardless of environmental variables.

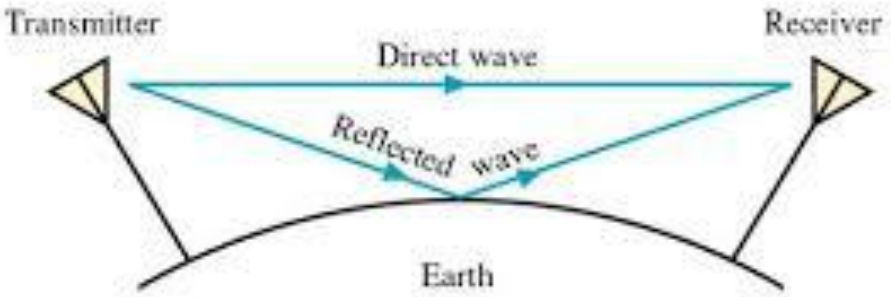
Radio amateurs relish durations of tropo-scatter because its effects are unpredictable and it's a bit like fishing, you are not sure what you are going to catch, if anything! Although microwave signals are refracted 'off course' as it passes through an area of changing environmental variables, the normal range of a microwave signal can be enhanced to the point where it goes beyond the horizon i.e. in excess of about 40 miles. When this happens, signals may travel up to 1,000 miles but of course, that signal has to be received by another ham at the other end of the conversation. The military also take advantage of this form of long distance communication.

Urban environments

Urban environments also pose many headaches for the telecoms companies. Think about all the different types of building materials on walls, buildings, floors, roads and roofs and you can see that each material may affect the transmission and range of a microwave signal, usually in unpredictable ways.

Microwave signals can be reflected off the ground, buildings and other environmental substances to both enhance the signal intensity at a much further distance than intended or the signals may get so attenuated that loss of communication due to poor audio quality is often experienced. In other circumstances this can lead to 'multipath' effects when two radio waves 'collide' with each other and cancel each other out. Much however, depends on the urban form and characteristics of the built environment between the transmitting and receiving antennas.

Figure 16:
Signal reflections off urban and environmental media



Besides signal reflections, we also have signal diffraction and refraction.
Figure 17

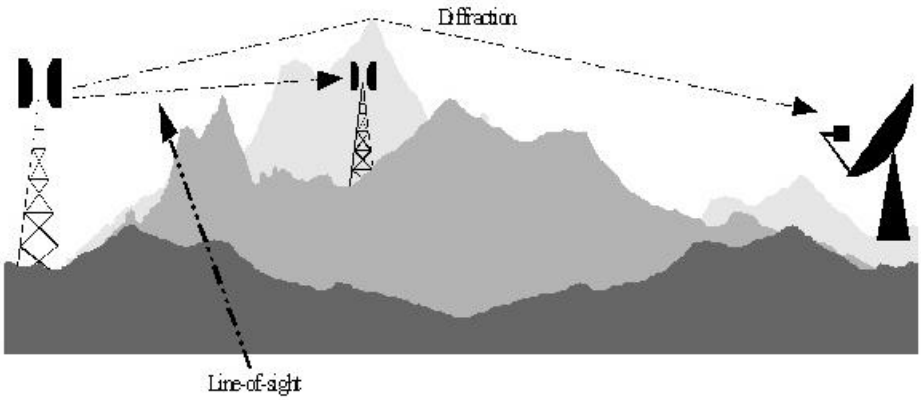
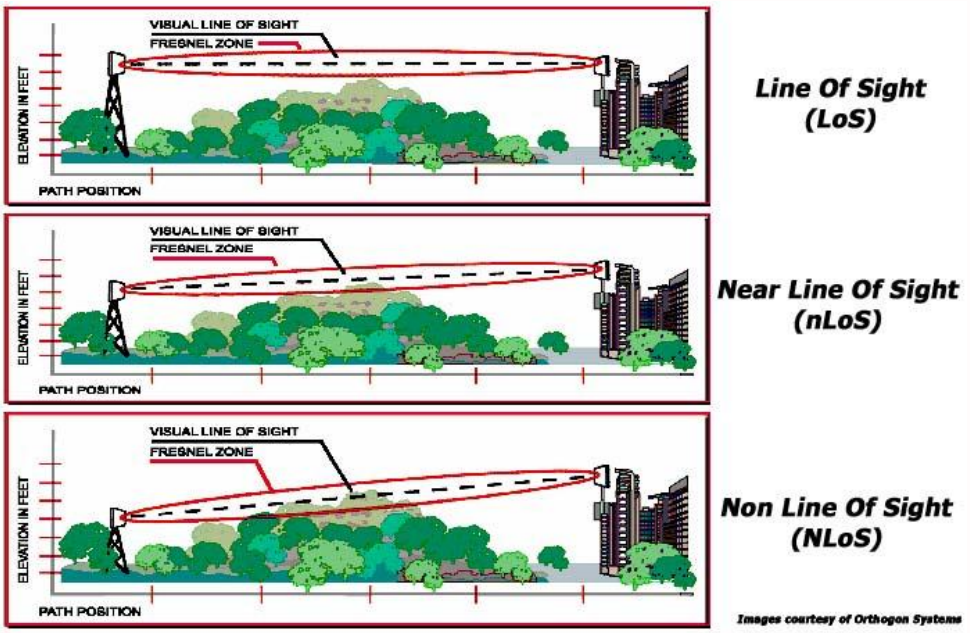


Figure 17 illustrates how signals can either be enhanced in intensity beyond their stated communication range. The signal or part of a signal which is normally line of sight to the receiving antenna has been diffracted within what is known as ‘knife-edge diffraction’. In this case, off a mountain top. In effect, effective radio communication might be lost as the signal diffracts off the mountain edge and diffracts back to ground. Diffraction and attenuation of radio signal may also occur within the lower atmosphere off dust particles, rain-scatter, tall buildings etc. and propagation becomes un-predictable.

The final image illustrates ‘line of sight’ radio communication within its associated Fresnel Zone. The Fresnel Zone denotes the totality of the built environment including trees, hedges bushes and other biota between the transmitting and receiving antennas. In order to visualise this, look at Figure 6below.

Line of Sight Communication and the Fresnel Zone

The top image illustrates ‘line of sight’ (LOS) between a transmitting and receiving antenna. The Fresnel Zone includes everything below and between the transmitting and receiving antenna. The Fresnel Zone is below the LOS which suggests there is little reflection, diffraction or refraction of signals into the Fresnel Zone. This is one of the reasons why ‘height is might’ and telecoms companies literally fight each other to install their transmitting equipment atop church spires and highly visible English Heritage monuments. The middle image illustrates what happens with near line of sight radio communications. Much of the signal between transmitter and receiver antenna is LOS but subject to attenuation when meteorological changes or refraction effects from tall buildings, vegetation etc. which combine to make communication difficult.



The lower image is more illustrative of real world environmental conditions. The transmitting antenna atop the tall building is radiating out a strong signal but the receiving antenna on the left of the image is much lower and caught up within the Fresnel Zone. Environmental, diffraction and refraction effects will be present to larger and greater degrees which makes effective communication difficult at times and impossible at other times.

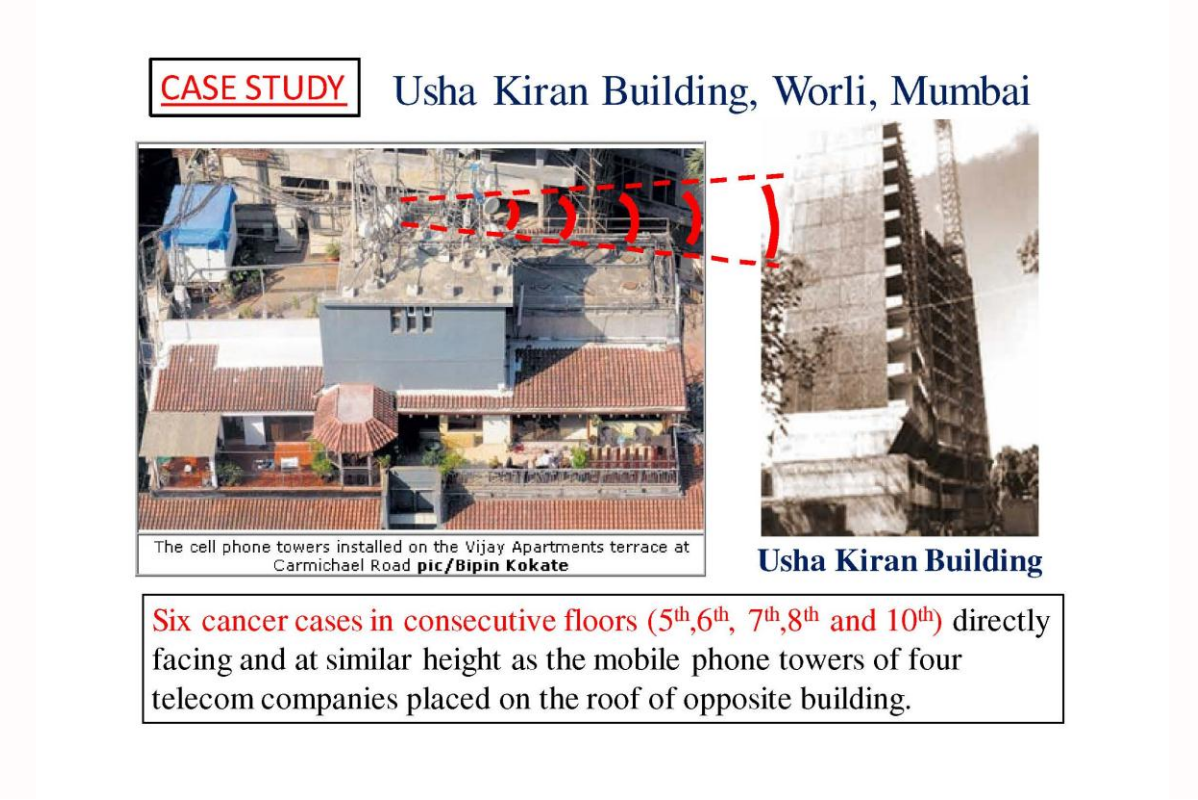
To sum it all up, there are physical and environmental factors involved in attempting to establish a clear signal path between the transmitting and receiving antenna. There are lots of variables to consider if you include absorption, refraction or diffraction of microwave signals as it encounters wood, glass, concrete, buildings and trees etc.

Line of sight communication scenarios

If we put everything together in one case study, we can better understand the beast we know and go forward from a position of understanding. When we have some idea of this silent conspiracy, we can ask relevant questions to the peoples and organisations pushing these technologies.

This next case study illustrates what goes wrong when several telecoms company decide to put their mobile phone transmitting antennas in the wrong place and at the wrong height. The data is from a Powerpoint presentation by Professor Kumar [8].

Individuals living within the shadow of intense microwave radiation from mobile phone antennas


CASE STUDY
Usha Kiran Building, Worli, Mumbai
The cell phone towers installed on the Vijay Apartments terrace at Carmichael Road pic/Bipin Kokate
Usha Kiran Building
Six cancer cases in consecutive floors (5th,6th, 7th,8th and 10th) directly facing and at similar height as the mobile phone towers of four telecom companies placed on the roof of opposite building.

Four mobile phone companies from Mumbai, India, installed masts and antennas atop an apartment block. The mast/antenna installations are elevated with respect to ground and directly facing another tower block. Over half of the building from the 5th floor upwards, opposite the newly installed mobile phone antennas are constantly bathed in strong microwave radiation, every second of every day. Six dwellers in that tower block were diagnosed with cancer. This is what happens when the laissez-faire telecoms companies operate with no due regard to consumer safety or even worse, from a state of ignorance about what they are doing. This data would not even be considered by the ICNIRP because the physicists there ignore any and all non-thermal biological effects.

Thankfully, where I live in the Wirral, we do not have many tower blocks and I can count them on one hand but I observe similar mobile phone and police TETRA mast installations all over this area and it is even more evident in places like Liverpool 1, which is the main shopping

area in Liverpool, Merseyside with lots of high rise buildings which are festooned in mushrooms of mobile phone antennas..

What this tells me is the telecommunications industries, politicians and their health regulators are joined at the hip in rolling out digital frequencies, gadgets and toys and nothing will stop them or get in their way. If these individuals completely ignore any issues related to exposure to microwave radiation long enough, they will achieve their 'unspoken' agenda. That agenda is very simple, the infrastructure and technologies ushered in via the Digital Age is silently killing us and the remainder of humanity are being frog-marched to a dystopian future of a soul-less marriage between man and machine. Look around and observe what has already happened on the major trunk roads and motorways of the UK and elsewhere. Smart motorways are designed for driverless cars and all those purple pipes they use alongside the motorway, will carry lots of digital information about the 'sanctioned for travel' electric cars, its passengers and destination. If you have no business travelling from Land's End to John O'Groats, you will not be allowed to travel – all of this infrastructure is silently being put in place and we plebs, are completely in the dark to its primary objectives.

Chapter 4: National Toxicology Programme, (NTP) rodent cancer study

The late 1990s witnessed a huge rollout of mobile phone infrastructure across the globe. The NTP rodent cancer study started prior to the fear-fest of computers unable to compute, the year 2000! I remember 1999 as a time in the UK when individuals and activists united to stop the rollout of mobile phone technologies in their areas because so little was understood of its effects on the people. Then as now, mobile phone companies attempted to plant masts and associated antennas in as many places as possible. In 2001, I bought my first EMF electrosmog meter from an electrical store in Tottenham Court Road, Central London. It has the capability to measure from 50 MHz – 3 GHz and able to measure up to 0.01 v m^{-2}. I still use it today because it is small, portable and very easy to carry around.

The NTP study was carried out by the American government which is significant because the ICNIRP cannot readily rubbish and ignore its findings. Secondly this work was tasked to two of the biggest hitters of public safety, the US FDA (Food & Drug Administration) and the NIEHS, (National Institute of Environmental Health Sciences) NTP (National Toxicology Programme) division.

The roles and responsibilities of the FDA is copied from their front page website:

"The Food and Drug Administration is responsible for protecting the public health by ensuring the safety, efficacy, and security of human and veterinary drugs, biological products, and medical devices; and by ensuring the safety of our nation's food supply, cosmetics, and products that emit radiation".

The NTP division defines itself here:

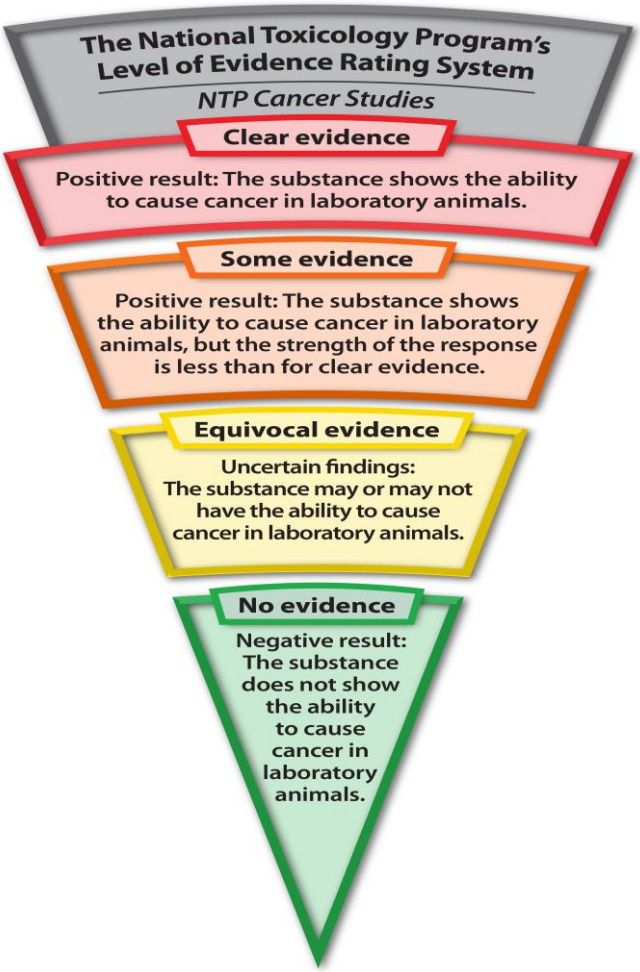
In 1999, the FDA asked its sister agency, the NIH, a question on mobile phone safety. The FDA described this as a high priority, calling for large-scale animal exposure studies that focus on cancer, ocular and neurological effects. It specifically called for replication of the Australian study that found a doubling of cancer among mice exposed to digital mobile phone signals. This research study cost over $25 million dollars and took almost 20 years to complete.

That length of time to complete a cancer induction research study suggests to me that someone, somewhere in either organisation either (a) did not want this work to conclude or (b) knew its findings would generate a lot of controversy. Whatever, the NTP rodent cancer study shattered the hegemony and 'thin-bake paradigm' of the ICNIRP who steadfastly insist that exposure to non-ionising radiation is safe. I call this an 'Alice in Wonderland, moment'.

I reproduce the findings and conclusions of this seminal work verbatim from the NTP information page: https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones/index.html

"What did the studies find?

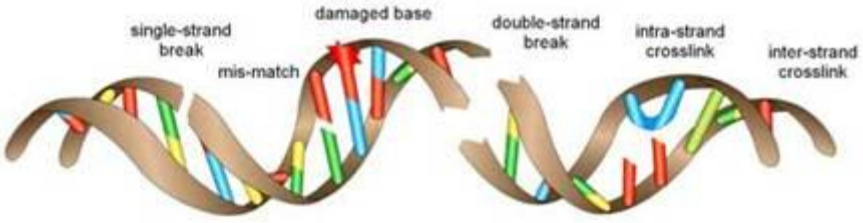
NTP uses a standard scale (see image blow) to determine the strength of the evidence for an association between the exposure and findings in the tissues or organs studied. The scale ranges from the highest rating of "'clear evidence'," followed by "some evidence," then "equivocal evidence," and finally "no evidence." Different organs or tissues can have different conclusions.


The National Toxicology Program's Level of Evidence Rating System
NTP Cancer Studies
Clear evidence
Positive result: The substance shows the ability to cause cancer in laboratory animals.
Some evidence
Positive result: The substance shows the ability to cause cancer in laboratory animals, but the strength of the response is less than for clear evidence.
Equivocal evidence
Uncertain findings: The substance may or may not have the ability to cause cancer in laboratory animals.
No evidence
Negative result: The substance does not show the ability to cause cancer in laboratory animals.

The NTP studies found that high exposure to RFR (900 MHz) used by cell phones was associated with:

'clear evidence' of an association with tumors in the hearts of male rats. *The tumors were malignant schwannomas.* ***Some evidence of an association with tumors in the brains of male rats.*** *The tumors were malignant gliomas.* ***Some evidence of an association with tumors in the adrenal glands of male rats.*** *The tumors were benign, malignant, or complex combined pheochromocytoma. It was unclear if tumors observed in the studies were caused by exposure to RFR in female rats (900 MHz) and male and female mice (1900MHz).*

As a follow-up, NTP published an article in October 2019 that evaluated DNA damage in three regions of the brain, the liver, and in blood cells in rats and mice that were removed at an earlier timepoint from the ongoing 2-year toxicology study. DNA damage, if not repaired, can potentially lead to tumors. This work was also included in NTP's published Technical Reports, but this study includes analyses of the data in the supporting information not included in the Technical Reports. NTP scientists found that RFR exposure was associated with an increase in DNA damage. Specifically, they found RFR exposure was linked with significant increases in DNA damage in the frontal cortex of the brain in male mice, the blood cells of female mice, and the hippocampus of male rats.There are many factors that influence whether damaged DNA will lead to tumors. NTP plans to conduct additional studies to learn more about how RFR might cause DNA damage.



Guess what, the ICNIRP challenged what they could by obfuscating, 'noise comments' and ignoring several key cancer findings and associations. The scientist who devised and carried out the NTP rodent cancer study responded to the ICNIRP comments, see image below[10]

Critique of the ICNIRP Note of September 4, 2018 Regarding
Recent Animal Carcinogenesis Studies

Ronald L. Melnick
Senior Scientist (retired), National Toxicology Program, NIEHS, NIH

September 12, 2018

The International Commission of Non-Ionizing Radiation Protection (ICNIRP, 2018) recently issued a report (dated September 4, 2018) that contains numerous false and misleading statements, particularly those about the toxicology and carcinogenesis studies on cell phone radiofrequency radiation by the US National Toxicology Program (NTP). This flawed analysis by ICNIRP served as the basis for ICNIRP to support their conclusion that existing radiofrequency exposure guidelines do not need to be revised despite new evidence showing that exposure to cell phone radiofrequency radiation (RFR) causes cancers in experimental animals. ICNIRP also does not take into account evidence on other harmful effects of cellphone radiation including damage to brain DNA, reduced pub birth weights, and decreased sperm quality.

The number of extensive incorrect and misleading statements in this ICNIRP document includes the following:

1) The ICNIRP statement that "the NTP reports have not yet undergone full peer–review" is wrong; the NTP reports on cell phone RFR underwent multiple peer reviews, including an unprecedented 3-day independent review more than five months earlier in March 2018.

2) The ICNIRP statement that many endpoints presented in the NTP reports were not defined "a priori" is also wrong. All of the endpoints presented in the NTP reports were specified in the Statement of Work for the conduct of the NTP studies that was developed during my tenure at NTP.

3) ICNIRP incorrectly states many critical conclusions from the NTP studies (NTP 2018a, 2018b). The peer review panel in March 2018 (NTP 2018c) concluded that there was "clear evidence" of carcinogenic activity for heart schwannomas in male rats exposed to GSM- or CDMA-modulated RFR, "some evidence" of carcinogenic activity for brain gliomas in male rats (both GSM and CDMA), and "equivocal evidence" for heart schwannomas in female rats (both GSM and CDMA). These categories of evidence are defined in all NTP technical reports: some evidence of carcinogenic activity means that the test agent caused an increased incidence in neoplasms, but "the strength of the response was less than that required for clear evidence." Equivocal evidence of carcinogenicity means that there was "a marginal increase in neoplasms that may be test-agent related." Therefore, any analysis of the NTP data must include the brain gliomas and the heart schwannomas; the ICNIRP report excluded consideration of the RFR-induced gliomas.

The NTP rodent cancer study has challenged the prevailing paradigm that radiofrequency radiation is non-ionising. The data was obtained by the US government and this time, it cannot be ignored. The data shows 'clear evidence' that exposure to microwave radiation causes cancer and this was backed up by findings from the Ramazzini Institute one year later. As we speak, the ICNIRP, its government patrons, telecommunication industries and all its fanboys are literally fighting for their lives. The ICNIRP has no scientific data to re-buff the NTP cancer findings they are a 'one-trick pony' non-ionising radiation type of organisation. The only avenue left for the ICNIRP is to ask the IARC to back-track on what it agreed on in 2011.

What is also interesting is the WHO, (World Health Organisation) defined exposure to radiofrequency microwave radiation as a Class 2B carcinogen in 2011. Despite evidence from the NTP study backed up by Ramazzini Institute, Italy[11], study, whose workers used lower exposures with similar Schwann cancer results, the re-classification process appears to be stalled. In other words, the WHO is dragging its feet in re-classifying microwave radiation as a Class 2A or Class 1 carcinogen. There is much more on the dynamics of the carcinogenic status of microwave radiation and the individuals involved in the annals of http://www.microwavenews.com.

Falling sperm rates, motility and full term pregnancies

I change tack slightly and discuss other adverse biological effects including sperm, fertility and brain tumour studies. The first article is from microwavenews.com and I note the fad and fashion of men who keep their mobile phone in their front trouser pocket whilst the women mostly put their mobile phone in their back pocket or between their breasts.

"Once Again, Australia's Aitken Sees DNA Damage[12] *August 16, 2009*

It's the strongest warning yet. John Aitken, a well-known fertility researcher, is advising men who want to have children not to keep active mobile phones below their waists. This issue, he says, "deserves our immediate attention."

Aitken's research group at the University of Newcastle in Australia has found that human sperm exposed to mobile phone radiation (1.8 GHz) for 16 hours had reduced vitality and motility, two key indices of fertility. Notably, he has also confirmed his own previous study, published in 2005, which showed that RF radiation could lead to DNA damage. In that earlier experiment, he had exposed mice to 900 MHz signals and then looked at the animals' sperm, in contrast to the new study in which he exposed semen collected from human volunteers. The new data show striking dose responses for all three effects over a wide range of SARs —above 0.4 W/Kg and up to 27.5 W/Kg. The changes in motility and vitality became statistically significant at 1 W/Kg and the DNA damage at 2.8 W/Kg. In all cases, the statistical reliability of the effects became much more significant with higher SARs. These new results appear in a paper published on July 31 in PLoS ONE, *a Web-based, peer-reviewed journal. All Public Library of Science (PLoS) journals offer free access to all.*

"After 16 hours exposure, there was 'clear evidence' of DNA damage," Aitken said at a fertility conference in Brisbane last fall when he first presented these findings. Aitken is the director of the Australian Research Council's Center of Excellence in Biotechnology and Development".

The second article is from the Middle East Fertility Society Journal[13] 2017

"Abstract
Cell phones emit radiofrequency electromagnetic radiation are prejudicial to human fertility. The objective was to study the effect of cell phone usage on semen quality and men's fertility.
Materials and methods
A cross-sectional observational study conducted on 159 men attending infertility clinics at North, Middle and South Governorates in Jordan and undergoing infertility evaluation were divided into two groups according to their active cell phone use: group A: ≤1 h/day and group B: >1 h/day. No interventions were given to patients and semen samples were collected by masturbation in a sterile container after an abstinence period of 5 days. The main outcome measures were sperm volume, liquefaction time, pH, viscosity, count, motility and morphology.
Results

There were no statistical significance differences ($p > 0.05$) between both groups regarding sperm quality parameters according to cell phone use, but there were statistical differences in the frequencies of sperm concentration, volume, viscosity, liquefaction time and means of immotile sperms and abnormal morphology. In addition, time spend on watching television and using wireless phones were significantly ($p \leq 0.05$) associated with decreasing mean percentages of normal morphology. The distance from telecommunication tower was significantly ($p \leq 0.05$) associated with decreasing sperms volume. Meanwhile, the time spend on sending or receiving messages was significantly ($p \leq 0.05$) associated with decreasing sperms count and carrying mobile phone in trouser pocket was significantly associated with increasing means of immotile sperms".

The final study on sperm and fertility issues and was carried out in a sperm fertility clinic.

"Abstract
Effect of cell phone usage on semen analysis in men attending infertility clinic: an observational study [14]

To investigate the effect of cell phone use on various markers of semen quality.

Patient(s)
Three hundred sixty-one men undergoing infertility evaluation were divided into four groups according to their active cell phone use: group A: no use; group B: <2 h/day; group C: 2–4 h/day; and group D: >4 h/day.
Main Outcome Measure(s)

Sperm parameters (volume, liquefaction time, pH, viscosity, sperm count, motility, viability, and morphology).

Result(s)
The comparisons of mean sperm count, motility, viability, and normal morphology among four different cell phone user groups were statistically significant. Mean sperm motility, viability, and normal morphology were significantly different in cell phone user groups within two sperm count groups. The laboratory values of the above four sperm parameters decreased in all four cell phone user groups as the duration of daily exposure to cell phones increased.

Conclusion(s)
Use of cell phones decrease the semen quality in men by decreasing the sperm count, motility, viability, and normal morphology. The decrease in sperm parameters was dependent on the duration of daily exposure to cell phones and independent of the initial semen quality. Cell phone use might have a negative effect on semen quality parameters and further research is needed."

Low sperm counts and motility etc. lead to lower fecundity rates and this trend appears prevalent in most countries today. To combat this, infertility clinics have sprung up to help diagnose semen quality and offer IVF (in-vitro fertilisation). I have many peer review studies that elucidate mobile phone use against low, medium and high users of mobile phones, Wi-Fi and computers. Although there is a lot of noise in the overall data because of differences in experimental protocols, in the majority of studies there is a clear trend of heavy mobile or Wi-Fi usage correlating with lower semen quality markers. The prevailing hypothesis is oxidative

stress in semen caused by an imbalance of oxidants to antioxidants i.e. too many free radicals present.

What I do not understand and find very odd are the very organisations who should be on the ball in these issues, consistently look the other way or are ignorant of what might be going on. Here is something you can try yourself. Search the internet for ‘fertility clinics’, book mark three of them and have a look at the reasons put forward to explain low sperm rates or reduced sperm motility. You will not find any mention of exposure to microwave radiation. Widen your search to include three countries and try again. Not one of them say anything about exposure to microwave radiation. I would however, expect those attending fertility clinics to be told that exposure to microwave radiation or genetics might be significant factors causing poor semen quality markers. Providing the fertility clinic owners add the caveat that these findings are preliminary, controversial and more research being needed, that person is at the very least, well advised. He might then think about all the advice given and say to himself, I can’t change my diet or genetics but, I can alter the ways in which I use my digital gadgets and toys.

Brain tumours

Since the early days of the rollout of mobile phone technologies, there has been a spate of research looking at the incidence of brain tumours. The Nordic countries were the first to embrace the Digital Age and any adverse non-thermal biological effects should show up there before other countries if we assume mobile phone usage patterns mirror incidence of adverse biological effects.

The unspoken issue is the absence or under-reporting of official data from cancer registries that could provide a time-link between exposure to mobile phone frequencies and brain cancer incidence. Just in case you shout that is not possible. Think back to the under-reporting of adverse biological effects from taking the COVID-19 vaccines. Doctors who work in GP (general practice) were paid a bonus each time they administered a COVID-19 vaccine. If you suffer an adverse biological reaction from taking a vaccine they convinced you to take and you suffer harm, what do you think your doctor is going to say if you accuse them of mal-practice? Also lest we forget, the Yellow Card adverse reaction reporting scheme used to monitor COVID-19 vaccine injuries is voluntary and some doctors were unaware it existed, never mind the general public. It is acknowledged by most that the Yellow Card Scheme under-reports by at 90%. At the latest count, over 1.5 million adverse reactions instances to COVID-19 jabs were reported. In other words, there are "lies, damn lies, under-reporting and statistics".

Therefore, official data on all sorts of epidemics, pandemics, mobile phone use and anything else dear to the workings of most government are to say the least, non-objective and obstructive. This is not conspiracy theory and reflect what many individuals experience when they try to get to the bottom of any government-derived safety issue. That is the context and background to how data is reported and interpreted via government sponsored researchers, government agencies and of course the health service on 'sensitive' issues such as rare brain tumours. Behind every nurse and doctor is a 'suit' who tells them how to record and catalogue medical cases. The obvious implication is that data can potentially, be mis-represented and consequently mis-interpreted and in terms of health policy, any potential 'red waving danger flags' are expertly swept under the carpet.

There is currently much controversy on how some countries report their data related to brain and other cancer types. Once again, I dip into http://www.microwavenews.com to set the scene on what is happening 'behind the scenes'.

"Reliability of Swedish brain tumor data questioned are rates actually increasing[(15)]?

Some leading epidemiologists have been saying that cell phones don't pose a brain tumor risk because cancer rates are not going up. Now comes word that Swedish cancer registry data are in disarray and official statistics may be masking a disquieting trend. Since 2008, there has been a close to 30% increase in patients with a brain tumor of an "unknown nature" and that increase is not reflected in the national cancer registry, according to a new analysis by Mona Nilsson, a Swedish journalist and the chairman of the Swedish Radiation Protection Foundation.

Nilsson reports that the number of Swedes who died of a brain tumor of an unknown nature rose by 157% between 2008 and 2013. And among those younger than 70, the increase was even "more pronounced" — there were 82 such deaths in 2013, compared to only 7 in 2008. Yet, Nilsson adds, "the number of patients reported dead of brain tumors with a confirmed diagnosis declined" during that same period. To further support her suspicion that the official brain cancer rates are not to be trusted, Nilsson points to "huge disparities" in brain tumor rates between different regions in Sweden. For instance, the rate among men in Stockholm was 8.99 per 100,000 while

in Gothenburg the rate was 15.19 per 100,000. Nilsson points out that there has been a parallel "steep increase" in the number of people treated for brain tumors of an unknown nature in the Stockholm region.

"The Gothenburg region discovered underreporting problems some six or seven years ago and took measures to improve the reporting. That's why the incidence in Gothenburg is much higher, nearly double, that in the Swedish capital region and probably better reflects the real situation," Nilsson said in an interview.

The news from Sweden comes as rumors are swirling that the cell phone industry is pressuring IARC to revisit its 2011 decision to classify RF radiation as a possible human carcinogen. In response to a query, Nicolas Gaudin, IARC's head of communications, told Microwave News *that he is "not aware of any such plans." Joachim Schüz, a senior manager at IARC, is one of those who points to stable cancer rates as an indicator that cell phones are safe (see "IARC Tries To Play Down Cell Phone Tumor Risks"). Schüz was previously with the Danish Cancer Society and is a coauthor of the Danish cohort study that shows no increased cell phone–tumor risks. Nilsson's analysis follows last year's still unexplained report of what has been called a "frightening" spike in aggressive brain tumors among Danish men. (See our report: "Something Is Rotten in Denmark.")*

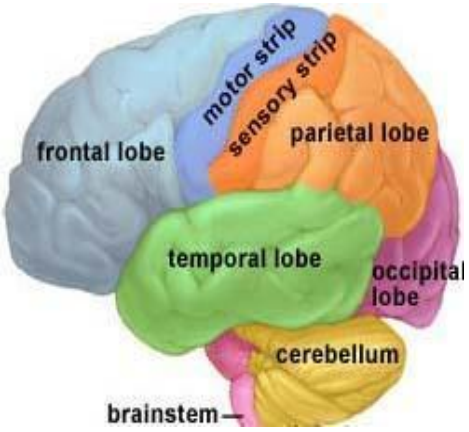
Last spring, a French study found a higher rate of brain tumors among heavy users of cell phones, supporting similar indications from IARC's Interphone study and the work of the Hardell group in Sweden. April 16, 2015

Lennart Hardell and Michael Carlberg have written up many of Nilsson's concerns in a paper published in the International Journal of Environmental Research and Public Health *(open access). They conclude that, "a large part of brain tumors of unknown type are never reported to the Cancer Register," and that the Registry is therefore "is not reliable to be used to dismiss results in epidemiological studies on the use of wireless phones and brain tumors."*

I wrote the following article in 2017 and I reproduce parts of it below: https://www.naturalblaze.com/2017/05/deadly-brain-tumor-rates-rise-u-s-europe-cell-phones-blame.html

"Rates of glioblastoma multiforme (IV), an aggressive and deadly form of brain tumour, are increasing in the UK, US, Netherlands, Sweden, and Denmark. This is ominous because as in smoking and cancer induction, a certain time span is required before cancer sets in the body and is recognised as such by medical and scientific bodies. No one is really sure on the latency period between exposure to microwave radiation emitted from cell phone and WI-FI router antennas and the induction of carcinogenic processes within the body. Maybe it is between 15 – 25 years for heavy users and God-knows how long for casual users. The real point of this article is that these data are starting to come in from all corners of the globe and these epidemiological and medical studies are all statistically significant. In other words, these data show causal effect and are not due to chance or probability.

Figure 20 shows various regions of one side of the head which comes into intimate contact with microwave radiation from mobile phone usage



The list below gives a breakdown on properties of brain tumours associated with the use of mobile phones. Brain tumours are abnormal tissue that grow from certain types of body cells. Tumours can also be called neoplasms or lesions and are either benign or malignant [(2)]. In general terms, benign tumours grow slowly whilst malignant tumours grow quickly.

Because brain tumours grow within a bony skull enclosure in which there is no room for growth, all of these types of tumour are life-threatening.

Gliomas: most common types of malignant brain tumours usually found in the frontal and temporal lobes of the brain.

Glioblastoma multiforme (IV): most virulent and deadly type of brain tumour

Neoplasms of the parietal lobe and temporal lobes

Meningioma: most common (mostly) benign tumour that usually develop in layers of tissue that surround and protect the brain and spinal cord

Acoustic neoplasms: tumours that grow in the inner ear close to the brain and in removing these types of tumours, it is necessary to remove the acoustic nerve resulting in deafness in that ear.

Statistics, damn statistics

To answer the question posed in the first sentence of this article, look at Figure 2, which is data derived from a long term study of tumour data (1989 -2010) from the Netherlands.

Figure 21

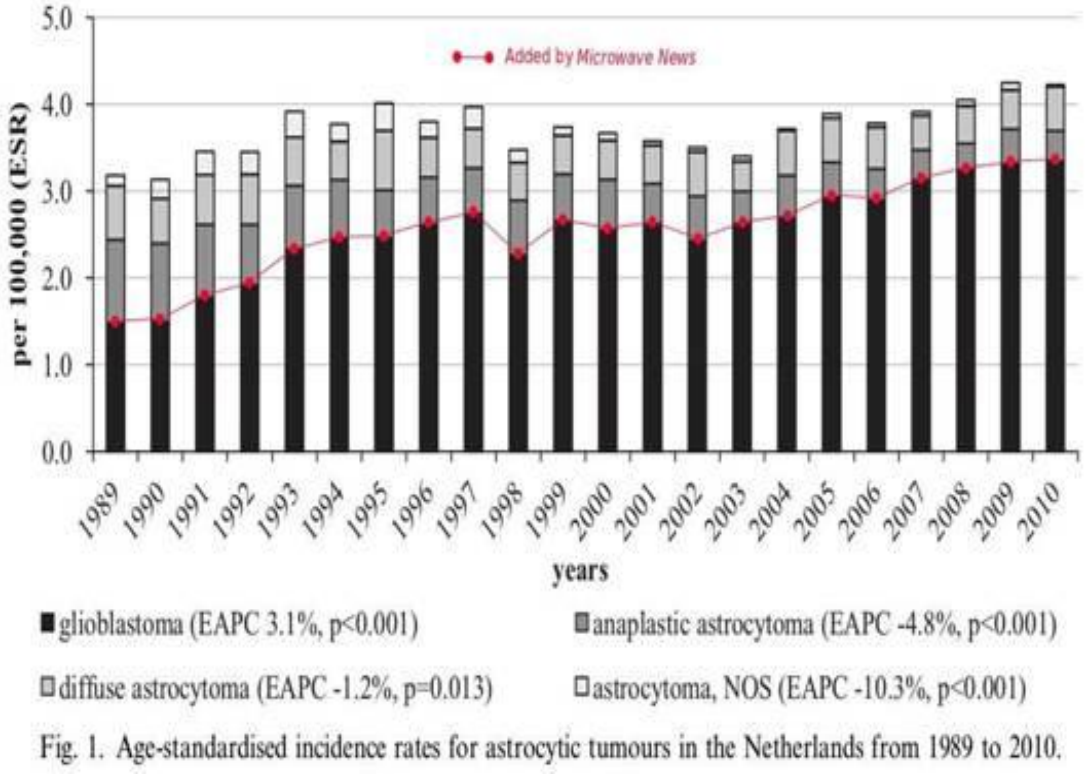


Fig. 1. Age-standardised incidence rates for astrocytic tumours in the Netherlands from 1989 to 2010.

At first glance, the height of the bars has remained roughly the same between 1989 and 2010. This suggests that during this period, there has been a steady diagnosis of 3 or 4 new tumour cases per 100,000 of the Dutch population per year. This is how the mainstream media and

the scientists who work for the telecommunications industries report data. However, significantly and 'lost' within this data, is the increase of the most virulent and deadly of the brain tumours, glioblastoma multiforme (IV), as shown by the red line on the graph. If we analyse the data by tumour type, we can see that whilst the number of overall tumours remains steady, the incidence of glioblastomas increases by between 2 and 3.5% per year and this is statistically significant. Glioblastomas are associated with heavy usage of mobile phones. It is the rate of change, both positive and negative, for each tumour type per year that tells the real story of what is unfolding, not the total number of recorded tumour cases.

This trend was also seen in the US by researchers from the Southern Californian Medical School who analysed the incident of brain tumours over a 15 year period with data collected from three central cancer registries. The data showed "decreased rates of primary brain tumours in all sites with the notable exception of increased incidence of glioblastomas multiforme in the frontal lobes, temporal lobes and cerebellum." Statistically significant increases per year were determined ranging from 1.5 – 3%.

Sweden was one of the first European countries to adopt mobile phone technology and clearly, what happens there is a foretaste of what will occur elsewhere. In fact, Sweden and Denmark are the countries to watch as this drama of exposure and deadly harm unfolds within those segments of humanity habitually using mobile phones and other microwave-enabled gadgets.

Recent data from the UK also shows this trend of decreasing incidence of overall brain tumours apart from an increase in glioblastoma multiforme (IV) as shown in Figure 3. The lead researcher of this paper, Vocht, however, denies any such association between glioblastoma multiforme increases and mobile phone usage through time. Vocht merely comments that "A causal factor, of which mobile phone use (and possibly other wireless equipment) is in agreement with the hypothesized temporal association, is related to an increased risk of developing malignant neoplasms in the temporal lobe." Trevor Philips of PowerWatch analysed the raw data and found the wrong data had been used in this study. The lead researcher, Vocht said that a 'mis-communication issue' had arisen between him and the data provider. Vocht subsequently had to issue a 'corrigendum' or 'correction in print' to his study because he used the wrong data

Figure 22

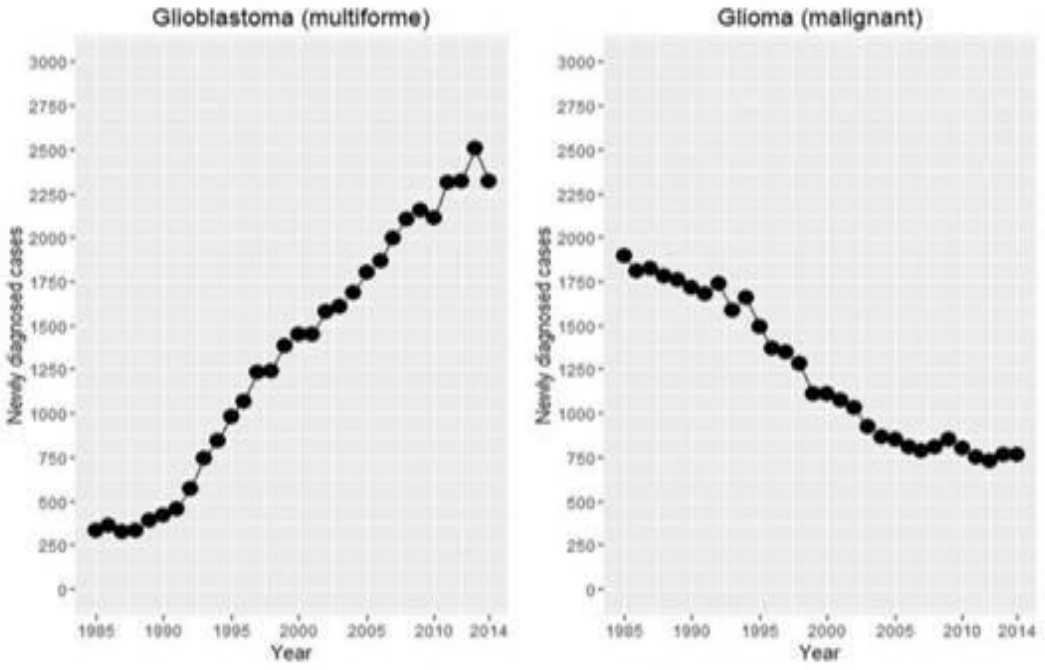


Fig. 1. 1985–2014 annual number of newly registered cases of malignant glioma and glioblastoma multiforme.

It is clear, contrary to the belief held by the telecommunications industries and its regulators, that exposure to microwave radiation is capable of initiating carcinogenic (cancer-causing) processes within our biology. There is also ample evidence that exposure to non-thermal levels of microwave radiation is genotoxic and tetrogenic. Time is running out for those who believe that non-ionising radiation is safe i.e. the telecommunications industries and their governmental regulators. I suspect we are close to the latency period at which cancers and tumours have had time to develop and the trend discussed above could either develop into a 'tsunami' of brain tumour increases or they could take longer to develop – either scenario is too frightening to contemplate".

For now, I return to another topic and repeat what I said earlier, politicians, think tanks, advisory groups, governments, their militaries, health regulators, telecoms companies, the telecommunication industries and the ICNIRP knew that exposure to microwave radiation is dangerous to health. Safety data has been available since the 1930s onwards and the scientific safety landscape in 2022 now encompasses thousands upon thousands of peer review studies, all pointing in the same direction – exposure to microwave radiation is dangerous to health. In the following chapter, I discuss school Wi-Fi,

In **Chapter 5**, I discuss the issue of Wi-Fi routers in schools, school refusers and a plethora of very odd behavioural markers that classify children as being somewhere on the autism spectrum. I also focus on student suicide clusters, notably in the UK where 15 students from one UK university, committed suicide within a year or so – that is very unusual. I also detail mirror suicide cases from a South Wales town, Bridgend and the USA some years previous to this when TETRA antennas became operational for the first time. I end this chapter by focussing on the signal strength intensities of microwave radiation in our homes and more importantly, how to cut down on the amount of electrosmog we generate.

Chapter 5: Schools, Wi-Fi and the ‘see, hear and do no evil’ doctrine

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If Wi-Fi can damage human DNA* and change what is going on in my brain**, then why do we have to use it at school?
Dear Headteacher, Can we please have fibre-optic or Ethernet cables for the computers? Love from Year 4.
Radiofrequency radiation is a possible human carcinogen
(WHO, International Agency for Research on Cancer 2011)
* Use of laptop computers connected to internet through Wi-Fi decreases human sperm motility and increases sperm DNA fragmentation (2011) Avendaño C. et al, Fertility and Sterility (Epub ahead of print) http://www.ncbi.nlm.nih.gov/pubmed/22112647
** Effects of Wi-Fi signals on the p300 component of event-related potentials during an auditory hayling task (2011) Papageorgiou C.C. et al, Journal of Integrative Neuroscience 10(2):189–202 http://www.ncbi.nlm.nih.gov/pubmed/21714138

If you can remember watching TV on a black and white screen, wearing hipsters and playing yo-yos with your friends, thank your lucky stars because you grew up in a ‘normal’ electromagnetic environment. Yep, OK, we had 50 Hz ac house electrical currents and all the consumer items around us but, compared to what is out there today, we ‘old uns’ are very lucky being born and growing up before the advent of the Digital Age.

The school environment has also changed hugely since I was a kid. As a lad, we had ‘chalk and talk’ teachers who wielded canes and were very easily provoked into using them. It literally was ‘old-skool’ in one sense, because we all used pens, paper and we all read from smelly, sturdy books of all shape, sizes and descriptions. The closest I ever got to the concept of a computer as a kid was a Britannica Dictionary! Fast forward to today and things have changed, chalk and talk is old hat and replaced with a ‘child-centred’ approach to learning. Teachers no longer walk around looking for the next kid to smack. Teachers exert control in the classrooms by (a) providing relevant and interesting material or (b) using Pavlovian-type dojo points to bribe kids into doing their schoolwork, homework or behaving nicely.

The biggest change of course, lie in the technologies used to educate our kids. Most of the young teachers of today grew up with and the technologies of computers to educate themselves, organise their teaching materials and also to deliver content. I remember having to sit through boring logs and anti-log numerical data as a young child. We had to do this every time it rained on our sports afternoon when footie was cancelled. I notice my children having

to do a similar version of mind-numbingly ‘learn your tables’ using a computer at home. In order to pass to the next level, they have to compute answers to questions within a specified time. I don’t like this method of boring teaching because the kids spend literally years on this one task and I honestly wish I knew why. It also means the kids are tied to the computer after school for long periods of time and this is something else I do not like.

In other words, almost everyone in the world of education can only see the benefits of the computer age and have absolutely no idea of its darker side. Teachers not only expect kids to get to grips with computers at school, it is also expected at home as well to complete homework. Also, many parents love the connectedness of Wi-Fi and it usually stays switched on 24/7. Young children, teens, adolescents and adults therefore live within the environs of an electromagnetic cage 24/7 whether they are at home or school.

Children, however, by dint of small physical size are probably more susceptible to being harmed from WI-FI microwave radiation because their immune system is not yet fully developed, their skeletal and cranial body is much thinner than an adult and their body organs relative to their body size are much larger which present effective targets for microwave irradiation. The microwave frequencies between 900 MHz -2.4 GHz, also approximate multiples of an antenna wavelength which also target young kids. In other words, young children preferentially absorb more microwave radiation relative to an adult when exposed to the same levels of microwave radiation.

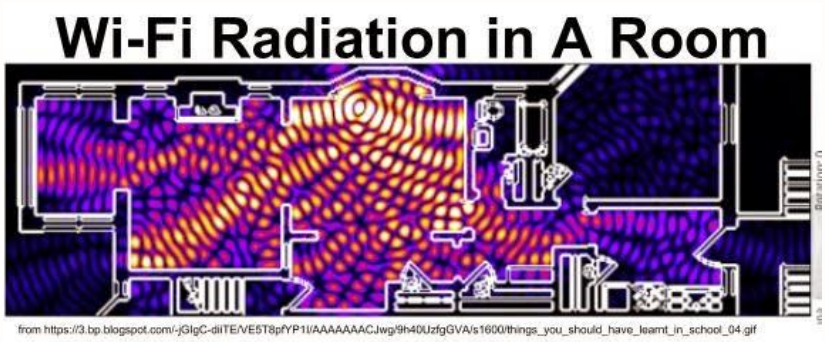
The game-changer is this, 25 years ago, parents demonstrated against the telecoms companies because they wanted to install mobile phone masts in school playgrounds. Today, it is the schools themselves who install industrial-sized Wi-Fi routers and access points *inside the classroom* and the telecoms companies no longer need to fight protestors to site their deadly mobile phone infrastructure. Significantly, the use of Wi-Fi in schools has massively ramped up the internal intensity of the electromagnetic cage we live within. There is a mountain of evidence that show, sub-thermal biological effects are damaging and affecting our children at exposure levels well below that recommended by the ICNIRP. Evidence of psychological and mental health problems associated with exposure to microwave radiation is not associated with this silent killer. Few people understand that if our neurological bodies are swamped by microwave radiation, all sorts of weird biological processes become short-circuited, open circuited or simply breaks down. Stress, anxiety and depression amongst our kids are visual pointers that not all is well in our schools and we have to do something about it, now, rather than later.

The use of WI-FI in school

A central Wi-Fi router and server radiate a signal throughout the school. Access points are installed in classrooms, hallways and offices. An access point is hard-wired back to the Wi-Fi server to reach those places in school premises where the signal is low. What this means in practice is each access point acts as a Wi-Fi router wherever it is installed. Access points are mounted on the ceiling or high up a wall with the antenna pointing downwards. Some schools use up to 30 or more access points to ensure full coverage of school premises. Therefore, whether your class is using the Internet or not, everyone to some degree in that school is being irradiated for all the time they are on school premises.

The image below illustrates what happens to the inside environment of a school when the WI-FI routers and access points are switched on. The router itself is sited towards the top centre

of the image and the regions of high signal strength are coloured yellow. The change in colour to dark blue signify areas of lower microwave radiation.



It is perhaps a little easier to visualise what is going on when you consider a scenario in which the teacher suddenly asks a class of 35 pupils to access the internet at the same time using their Apple iPads. A few years back I investigated such a scenario in my local primary school. Background radiation within the classroom was determined at about 0.2 volts per metre with the occasional hotspot approaching 0.5 volts/m. I took care to make measurements of background radiation at different heights above ground within the classroom. As expected, background radiation increased with increasing height and immediately in front of the access point. Specifically, I wanted to know what happens when the teacher asked the students to switch on their Apple iPads whilst seated at their desks.

I took readings at head height around the class and the maximum reading was 3.5 volts/M. In other words, the duration of these very high exposures, occur each time the children use this technology.

I also noted how the kids used their iPads and because of the smallish screen, most of the children bury their head in their Apple iPads. Possibly, the worst-case exposure scenario for young growing children is to habitually, put their head close to the iPad screen when using carrying out their schoolwork. I noticed that none of the kids used a cradle when using their i-Pads which resulted in kids using their device at funny angles.

I also took readings with my EMF meter as I walked around part of the school premises where the server room was located. I also took readings away from the server room into the playground and beyond. Taking these types of readings within any premises is problematic and complex simply because you have absorption, diffraction and reflection of microwave signals both spatially and with height above ground. The other issue of course, is that almost everyone in the street across the road, probably keep their Wi-Fi router switched on. If you also add to this mix, passing traffic using in-car mobile telephony powered by microwave radiation, there are several sources of microwave radiation at frequencies of 900 MHz, 1800 MHz and 2450 MHz i.e. electrosmog of the worst types.

I submitted my EMF report to the head teacher and to her credit, she took on-board the notion that iPads must be used in the way stated in the manual otherwise the SAR value might be exceeded. She contacted a department (I think) in the Department of Education and they replied that because exposure readings were well below the legal limit of 61 volts /m, there were no safety concerns.

I asked the head teacher whether she consider hard-wiring the school premises just like it was back in 1989 when I was introduced to an Amstrad 8256 computer using Netscape as an Internet browser. I also asked whether it was possible for lessons to be pre-loaded onto the Apple iPads before the kids come to school. This is where it becomes frustrating for me because I presented a dossier of data and other safety information which highlighted potential scenarios of high exposure to microwave radiation to a classroom full of growing kids and the full implications of biological harm was largely ignored.

The reaction of the head teacher is typical of many individuals responsible for getting the work of their organisation done. When faced with a new or novel situation, rather than investigate the issue themselves, they immediately say, "I am not an expert" in these matters which gives them the green light to ask someone else. I always define this as the blind asking the blind to describe differences in the colours orange and yellow and it always ends up bad!

I understand how useful computers and the Internet can be because almost from boy to man, I have used them. Computers and the Internet have allowed me to organise my work areas and educate myself. In one sense, computers in school regulate the day, what is taught, how it is taught and many young teachers would find it extremely difficult to do their jobs the old fashioned way. I never asked the head-teacher to revert back to the old ways, I simply asked her to consider hard-wiring all their devices and perhaps think about pre-loading lesson material onto the laptop, i-Pad etc. Once again, the head-teacher was clearly ignorant of the effects of exposure from microwave radiation and she thanked me for the survey and advice yet I knew none of it would be implemented. Thankfully, not all head teachers adopt this view, because they are aware of RF issues. The problem is one of general ignorance within the population and before we can move forward on these issues, we need the oxygen of debate on the harm exposure from microwave radiation is extracting from all of us, especially our young children.

To reiterate, young children preferentially absorb more microwave radiation than adults[16].

"There are multiple studies showing that children absorb more MWR (microwave radiation) than adults. In 1996 a study reported that the absorbed MWR penetrated proportionally deeper into the brain of children age 5 and 10 compared to adults' brains [2]. In 2008 Joe Wiart, a senior researcher for French tele- com and Orange reported that the brain tissue of children absorbed about two times more MWR than adults' brain tissue [3].

A 2009 study reported the CNS (central nervous system) absorption by children is "significantly larger (~2×) because the RF [MWR] source is closer and skin and bone layers are thinner", and "bone marrow" exposure strongly varies with age and is significantly larger for children (~10×)[4].

In 2010, Andreas Christ and team reported children's hippocampus and hypothalamus absorbs 1.6–3.1 times higher and the cerebellum absorbs 2.5 times higher MWR compared to adults'; children's bone marrow absorbs 10 times higher MWR radiation than in adults, and children's eyes absorb higher MWR than adults [5]. These calculations were based on porcine measurements taken from sacrificed animals"

School refusers, ADHD and PDA

I move on with the unspoken 'epidemic' of schoolchildren within the UK, refusing to go to school, so-called school-refusers. I also discuss, the relatively new 'autism spectrum, ADHD (attention deficit hyperactivity disorder) and PDA (pathological demand avoidance) and the increased levels of stress and anxiety amongst young schoolkids.

If you want to get a flavour for what happens when our bodies are exposed to strong (and weak) EMFs, the two gurus whose shoulders I stand on are, Dr Robert O Becker, (body electric, electromagnetism and the foundation of life) and Dr Samuel Milham (dirty electricity, electrification and the diseases of civilisation).

Bob Becker pioneered the use of bio electricity in mental and physical well-being. He started his early research looking at the way in which frogs and salamanders were able to regenerate their limbs. In doing so, he discovered an awful lot about the effects radiofrequency radiation, i.e. electrical currents and voltages had on the human body. He found both positive and negative effects. In a later book called Cross Currents which was published in 1990, he was critical of the telecommunications industries for not informing the public about its dangers, a *déjà vu* moment here and that was more than 30 years ago.

In his book he detailed the perils of electro-pollution, he spoke of a "data transmission and body control system" located in cells, transmitting information by means of a DC electrical current. During his career, he was put forward twice as a nominee for a Nobel Prize in Medicine. That said, as soon as he started to sound the alarm bells over issues of electro-pollution, he was passed over. The electromagnetic world we live in today is completely different to how it was 35 years ago. In those days, Wi-Fi was a 'wet dream' and connecting to the Internet was congested and very slow using telephony dial up. Fast forward to today microwave transmitters i.e. Wi-Fi routers are in almost every household, school, college, workplace and university. It is provided, free of charge on buses, trains, shopping malls and planes. It is very difficult to get away from any form of exposure to microwave radiation. Thus, the potential for overloading the bio-electric circuits in our body is very high. If you imagine how body stasis is achieved under most conditions of existence, we have neurotransmitter, (NTs) molecules which act as messengers or impulses between the central nervous system (CNS) and all body systems including the brain and gut. Thus, NTs have hundreds of physical and physiological functions. Neurotransmitters also function in excitory or inhibitory mode. Is it possible that exposure to microwave radiation means the NT molecules are re-absorbed into the body too quickly, too few or too many NT molecules are produced or the NT molecules are simply de-activated in the presence of electromagnetic frequencies.

The endocrine system also plays an important function in body stasis because glands release hormones which perform many different functions under the influence of receptors. Is it possible that exposure to microwave radiation electrically or magnetically overloads the endocrine system, resulting in some glands being under or over-active? I suffer from a mild form of EHS, (electro-hyper-sensitivity). As a result of this, I can feel when I am close to microwave transmitters be it mobile phone, mobile antenna or Wi-Fi. I feel a burning sensation in my gut and it is bearable but not something I like to be exposed to for too long. Interestingly, there is a lot of research going on between the flora in our gut and mental well-being. Specifically, researchers are interested in the association between gut flora and depression[17]
.

"Any permutations in the gut microbiome composition trigger microbial lipopolysaccharides (LPS) production. It, in turn, activates inflammatory responses. Cytokines send signals to the vagus nerve, which links the process to the hypothalamic-pituitary-adrenal axis that consequently causes behavioural effects. Another school of thought suggests that the gastrointestinal (GI) tract's inflammation leads to neuroinflammation. It then fuels microglial action and triggers the kynurenine pathway. All these processes induce depression [14]".

I list several hormones that may affects states of well-being when the body produces too much or too little of these substances. I suspect that in the presence of foreign fields of microwave radiation our body-electric gets swamped resulting in certain chemicals and substances not being released or mediated when needed. In short, the body is biologically dis-ordered which lead to states of dis-ease, stress, anxiety and depression.

Acetylcholine: is a neurotransmitter and is required for good cognitive function. Too much may impact the immune system and alter the body's response to allergens. *Depression* is also a likely condition. Although serotonin mediates good mental health, it is well documented that higher than normal levels of acetylcholine are associated with heightened *stress* and *anxiety* levels as well.

Too little acetylcholine causes brain-fog, short term memory impairment, fatigue and decreased capacity for exercise. The function of the vagus nerve is also impaired leading to several digestive problems. A correctly functioning acetylcholine level also allows the body to quickly calm down after a fight-flight response.

Serotonin is a neurotransmitter produced in the brain and mediates lots of functions within the CNC i.e. brain and spinal cord. Serotonin is responsible for *mood regulation*. Too much serotonin is normally caused by other medications or substances and not related to NT action i.e. antidepressants, St. John's wort.
Individuals with too little serotonin levels may experience aggression, poor sleep patterns, irritability, poor memory retention and low self-esteem. Symptoms of low serotonin levels also include *anxiety* and *panic disorder*, *depression*, eating disorders, and obsessive-compulsive disorder.

Cortisol is the primary substance of the body that regulates fight-flight response. It is produced in circadian fashion, i.e. highest in the morning and lowest in the evening. The hypothalamus and pituitary glands regulate the correct amount of cortisol in the blood.
Too much cortisol in the blood may cause, *anxiety*, *depression*, and body fatigue. Other symptoms include reduced memory retention, concentration and sleeping problems. Too little cortisol may lead to loss of appetite, weight loss and *mood swings*.

To sum up, mental health conditions associated with the gut-brain complex include: autism, anxiety, bi-polar personality, depression, insomnia, schizophrenia and these symptoms may be aligned with any or all of the following: unable to concentrate and focus, stress, teeth-grinding, very low self-esteem, unable to take part in any social circumstance outside the immediate family and procrastination. Clearly, if the body is swamped by exposure to microwave radiation, it may cause changes in mood and mental well-being. I am not saying that exposure to radiofrequency radiation *directly* causes mental health issues. What I would argue, however, is there appears to be an association between microwave radiation and the new definitions of mental well-being which include the relatively new labels of 'autism spectrum', ADHD, PDA and young person, stress, depression and anxiety levels.

More research is needed on this association and rather than focus purely on cause-effect relationships per se. If we examine the nationwide school records of absenteeism in this country over the past 50 years. It should be a relatively simple task to plot the timeline of odd behavioural markers within school records concurrent with the rollout of telecommunication technologies. The government and local councils should have this information available to researchers. In other words, I advocate a simple number crunch exercise to investigate associations between exposure to microwave radiation and the onset of the relatively new 'autism spectrum diagnoses'.

There is another 'silent conspiracy' going on here and that is the explosion in numbers of schoolchildren unable to go to school. They experience stress and anxiety just attempting to go through the entrance to the school gate. The schools hold the keys to all the information about cases they refer to SEN (special educational needs) and educational psychologists. I suspect a typical scenario plays itself out at 9 o'clock each morning in some but not all schools. When faced with a child being absent regularly, schools tend to react as if they have never faced this form of behaviour before. In extreme cases, the parents are sent letters that state that unless little Jane's attendance does not improve, sanctions and fines will follow – this is clearly nonsense. Perhaps this is a topic that schools themselves can take up by organising a conference for head-teachers in that region to attend. Just a little bit more discussion might go a long way in alerting teachers, teaching staff and even local authority departments that child safety /mental well-being issues are bubbling under the surface yet no pattern of cause can be identified.

School refusers, PDA and ASD

The conspiracy of silence behind issues of school refusers also extends to local councils because it is they who must (a) finance that child's education outside of a normal school environment or (b) offer alternative provisions which might include one-on-one home tutoring. When the school finally mention that something might be going on behind this truancy, the paediatrician and social services take over. It is here that the whole process gets very sticky for parents because the next stage of this long, painful journey is to get a *diagnosis*. This might take years to complete, even though the local councils have a statutory duty to offer alternative education provisions within a set time limit, usually within 6 months.

There are places like CAMHS that a child might be referred to, but guess what, due to excessive demand, they have a waiting list and parents are asked to phone up maybe once a month to see where they are in the list of applicants.

School refusal takes many forms and it starts slowly and builds up. If you ask your child what is wrong and why they do not want to go to school, the child cannot answer why. This is very frustrating for the parent because they want to right the wrong that stops little Jimmy going to school. At this stage, you must believe your child that they do not know why they act the way they do. If you press them further and as it gets closer to school time, they begin to panic and get anxious. The child might say "I don't like the teacher, uniform, lesson or the journey to school. By this time, the child is in fight or flight mode and he/she may hide under the bed, in the wardrobe or 'dis-appear' prior to leaving for school. They may abscond from school and exhibit stressed, anxious behaviour whilst in school. On the other hand, that child may 'mask' any feelings of stress and anxiety whilst in school and have a 'meltdown' when they get home. It is difficult to understand what is going on because issues of this type are not common

knowledge and schools tend to play down issues of this type just like they do when asked about bullying.

Parents have to be very careful when little Jimmy digs his heels in and refuses to go to school. The more you push, the more that child's stress and anxiety levels increase. It is at this stage that parents can start asking the school relevant questions the right questions, i.e. are they aware of the phenomena called 'school refusers'. One confounding issue many parents may face is that even though little Jimmy is stressed and anxious every Monday morning and each time he is expected to attend school, once in school, no-one notices anything untoward. In other words, in the early stages of a school refuser, they can make it to school and 'mask' their feelings but come home and melt-down again. You can also ask schools if they have heard of PDA and what if anything, they can do about it. Unfortunately, it is also at this stage that most parents realise something big is going on within little Jimmy and his school refusal behaviours are simply a symptom of that. Schools and government websites are basically useless when it comes to offering advice on school refusers. The only avenues left for parents are on-line forums for school refusers and PDA'ers. It is here that the behaviour of little Jimmy is echoed by the sons and daughters of many other forum members. Thus, begins the long road to understanding as parent grapple with EOTAS, (education other than at school), EHCP, (education, health and care plan) and home-schooling. The other side of this equation is to find out exactly what might be going on with little Jimmy by visiting various child-behaviour experts for a diagnosis. It is here that eventually, someone may say, little Jimmy is on the autistic spectrum with ADHD, PDA etc.

Pathological Demand Avoidance, (PDA) develops behaviourally along similar lines to those kids who experience stress and anxiety just going through the entrance door to school. The term PDA is ascribed to those kids unable to complete any task big or small if there is an *expectation* within it. In other words, a child might write an essay on something yet fail to submit that essay back to the teacher because it is *expected*. They may fail to do their homework in the first place because it is *expected*. This type of behaviour extends outside the school and you begin to remember when little Jimmy was 4 years old, not acting up but slightly strangely. Little Jimmy might join a karate club and everything is fine until the instructor, says, "it is now time to take your first belt". A PDA child might drop his karate lessons quicker than a hot poker. A child might be good at and enjoy football, yet when asked to play for the school football team i.e. *expected* behaviour, that child suddenly drops out of any football activities.

Children who suffer from PDA also have low self-esteem, regardless of how brilliant they might be in any subject. Everything between the parent and the PDA child breaks down when that child is forced to do something. It is at this stage that parents must pull back and seek help. It does not help that symptoms of PDA are not recognised by most paediatricians and school psychologists. In other words, PDA might be the latest iteration of unusual behaviours by our kids and it may take some time for these behavioural symptoms to trickle through the caseloads of these organisations.

If you have a child that suffers from PDA, they will not be able to describe how they feel and why they do what they do. If you back off with the demands, your child might blossom through lack of challenge, which creates the space for them to create their day in their way. Some parents cannot envisage this loss of control and schools probably feel the same way. Perhaps we need to be more creative in how we educate our kids. The 'one-size' fits all syndrome of education is too antiquated and new models of learning should begin to be tried out.

That said, however, we first need to investigate all the strange and unusual mental and psychological behaviours from our children. I would argue that exposure to microwave radiation in young children whose immune system is not fully developed and cranial bone thickness not fully grown contribute to symptoms of 'microwave sickness' identified all those years ago by Russian scientists. It should not be too difficult to track back in time and simply note the timeframe introductions of computers, Wi-Fi, tablets and their use in schools. If there is any sort of correlation between incidences of ASD through specific timeframes, we simply roll back the use of computers, tablets and Wi-Fi in schools. A massive difference in exposure to microwave radiation can be made whilst children are in school, all day, simply by hard-wiring any Internet connection, computer or tablet and making sure everyone is aware of good RF practice.

The Precautionary Principle

Importantly, when a new technology or substance is introduced within society and echoes of controversy raise its head, be it DDT, Thalidomide, Roundup Ready pesticide or antidepressants and whilst the science is being sorted out, the Precautionary Principle should be used. This can be simply stated,

"When an activity raises threats to the environment or human health, precautionary measures should be taken, even if some cause-and-effect relationships are not fully established scientifically" [Raffensperger and Tickner, 1999, pp. 354–355].

Much of the early work on electro-pollution was pioneered by Bob Becker yet in order to do anything about the current state of affairs, we have to cut through two-intertwined conspiracies of silence. They are, the ICNIRP, politicians, government regulators and the telecommunication industries. The second strand of this conspiracy to stay 'stum' are educational institutions from primary to university level. Alongside the educational institutions are the school psychologists and community paediatricians. They deal with issues of these types every day and at some point, other than being constantly over-loaded by the sheer number of cases, they must hold peer-review conferences and/or meetings to simply acknowledge, *something is amiss with our youngsters because they refuse to go to school and suffer from high levels of stress and anxiety.*

I also think it a good idea if the local council are not asked to fund or provision alternative means of education for any youngster incapable of going to school. This role should be provisioned from a specialised agency within central government. Some LAs appear to do a good job in this area but many have a bad reputation in providing either a diagnosis or alternative provisions. The issue of course is funding. Lots of demand from parents with ASD or PDA will impact LA finances. We must find out what is causing these adverse mental, psychological and behavioural changes in our youngsters. Once we do that, the rest of it will be easier to manage.

We especially need a wide-ranging public debate on these issues before 5G begins its rollout. I think it is fairly safe to say that the radio-frequency power density within a 5G signal will lead to rapid adverse biological effects. The time period for these adverse biological effects to show up within society will be commensurate with the rollout of 5G in those areas it is first introduced.
In the next section, I discuss student suicides across UK university campuses and elucidate possible cause and/or association. Students in particular, study all day and socialise all night within a gilded cage of electrosmog EMFs. Advertisers target students for smart watches,

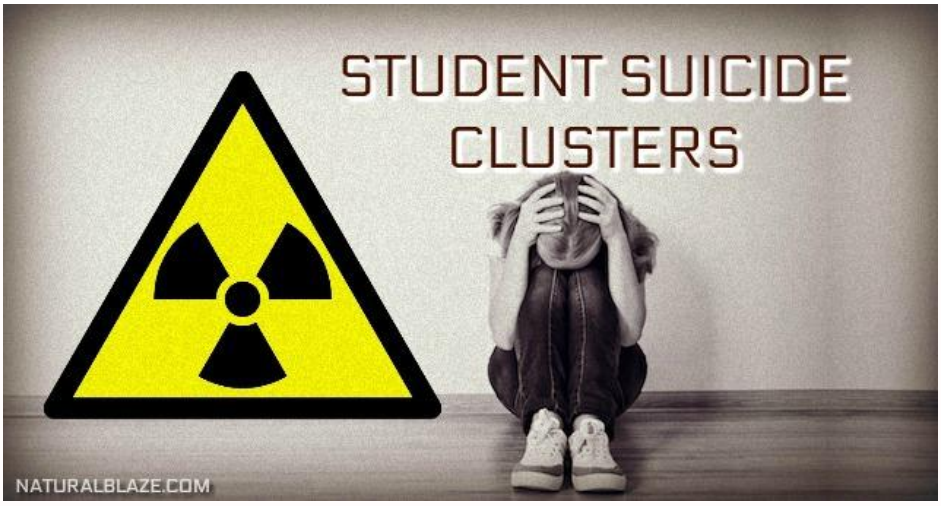
RFID tagged clothes, jogging armbands and a myriad of apps for their phones and laptops. In other words, students and school children face the greatest threat from radiofrequency radiation. What is perplexing to me is once again, the very institutions you would expect to be on the ball, are fast asleep at the wheel. Universities are run by administrators and they are the individuals who carry out the maintenance and organise all the stuff that goes on in the background. I looked at the presence of mobile phone masts in UK universities and out of 44 universities, only 6 had no on-campus mobile phone mast installations. All universities had mobile phone mast installations within 200 m of the campus boundary. Almost all student halls of residence off-site had mobile phone masts installed within 100 m of student halls. Student unions appear to have absolutely no interest in whether mobile phone masts are installed on campus otherwise they would have erupted in protest years ago. University lecturers and their unions were fairly on the ball with these issues 25 years ago but I have no idea where they have any interest in these issues or not. Similarly, I would expect teaching departments/unions in universities having a strong presence in Environmental Science and/or & Biological Sciences to at least have some discussion on student safety with university administrators.

I repeat, microwave radiation is a fairly recent toxicological bomb and the human body has no defence against it. When exposed to these high end frequencies, the CNS (central nervous system) and our biological signalling processes which regulate the flow of hormones via glands become irrational in their operation. Think of what happens when you have two radio signals next to each other which are pretty strong. As you listen to one station, the other station ‘bleeds’ in and just as quickly, fades out again. In other words, the front-end of one radio is swamped by the power of another radio signal resulting in entrainment, distortion, loss and it goes on day after day, rinse and repeat.

Between 2017 and 2018 I wrote several articles on student suicides and in 2019 wrote to a university chancellor body (UK Universities) with overall responsibility for what goes on within university campuses. Once again, I never received a reply which spurred me to look at the number of mobile phone masts on UK university campuses and this exercise confirmed to me that mobile phone companies target and follow university students on campus and in halls of residence. These mobile phone masts, in my opinion may provide an answer to the overall worsening of mental health of university students across the UK. Significantly, I argue that the numerous clusters of student suicides within British universities and elsewhere are largely attributable to the masts and antennas installed by the telecom companies.

The Precautionary Principle should be used by university chancellors and its administrators. It is high time we pierced this ‘conspiracy of silence’ instigated by the ICNIRP and governments because people are dying and suffering from exposure to microwave radiation.

UK student suicide clusters – is microwave radiation and its technology to blame?



"This is very sad and no-one is looking in the right places nor asking the right questions. Nine students from the University of Bristol (UK) committed suicide in one academic year. Bristol University is blaming the students themselves, arguing they suffered from prior 'mental health problems'. Of the suicided students, one was on campus for just 3 weeks and others were third and final years students.

Similarly, York University (UK) also had a suicide cluster of 5 students within a one year period in 2016. Of course, there are many explanations for why student suicides are on the increase and the narrative below is peddled by all the mainstream media outlets.

'A report by the university in May revealed that half of all ambulances called out to the University of York were for incidents of self-harm or suicide attempts. The proportion of emergency calls of this kind had been growing year on year. The rising costs of higher education and a more difficult labour market post-graduation have both been cited as to blame for the rise in depression'.

What if the university administrators and mainstream media pundits are wrong? What if the cause or causes of these suicides lie elsewhere? If we merely focus on one cause and it's the wrong cause it means that nothing has changed and even more unfortunate events will unfold in the coming years. Clearly, there are huge problems in student safety and well-being at some British universities. Statistics from the UK ONS (3) (Office of National Statistics) show that student suicide rates in England and Wales have risen by over 50% since 2007.

Thirty years ago I was a student in several UK universities from 1988 – 1995 and I cannot re-call a single suicide by anyone (staff included). Something has drastically changed in those intervening years and one issue that has no mention anywhere is Internet connectivity, particularly student exposure patterns to pulsed microwave radiation. My interest in student suicide clusters was piqued when I found out that Bristol University has its own internal-closed 5G network – this was in 2016!

Bristol University has world renowned expertise in the prediction and modelling of microwave radiation. It employs researchers and PhD students to carry out its work and has numerous research contracts with the UK government, other research institutes and of course, the telecommunications industries such as Nokia etc. It has a research lab with very expensive antenna test suites and software programme centres. Its activities and mission can be found here: http://www.bristol.ac.uk/engineering/research/smart/

Its mission is to improve 5G technology i.e. model and predict how millimetre 5G radio waves propagate within real-world urban centres. The issue here of course is that no safety testing has been carried out for these high-end microwave frequencies. Secondly, because safety testing is not even on the horizon for many organisations including radiation scientists, how many students, staff and members of the public are inadvertently exposed to 5G frequencies?

I wish I could assume that all the research facilities and their transmitting equipment at Bristol University are located and operated in such a way that they pose no biological danger to students working there or living close by in student halls of residence. Perhaps this centre of excellence for 5G research and the student suicide cluster is pure coincidence?

I wish Bristol and other universities were multi-disciplined in these issues and not rely solely on the physics of the challenges they study. One major gripe I have on university education is the whole thing has become so focused on one subject to the exclusion of anything else. It has now come to the point that classical physicists do not understand the rationale of quantum physicists, never the never ending feud between chemists and physicists. Rant over.

Not all universities however, carry out practical field work on microwave propagation characteristics and other factors must be at play that might explain these student suicide cluster trends. A common denominator at play is the interplay between the education system, internet connectivity technology and young people. Thirty years ago, universities did not rely on WI-FI and almost all computer-internet tasks were carried out via Ethernet cabling – that has now drastically changed with the development and deployment of WI-FI.

Universities almost everywhere use industrial grade (high signal power output) routers to ensure their campus grounds and buildings have an adequate WI-FI signal. This means that students are exposed to a relatively high background of microwave radiation everywhere they go and in everything they do. Some lectures are taught 'over the internet' using WI-FI, which means students are constantly exposed to pulsed microwave signals day in and day out.

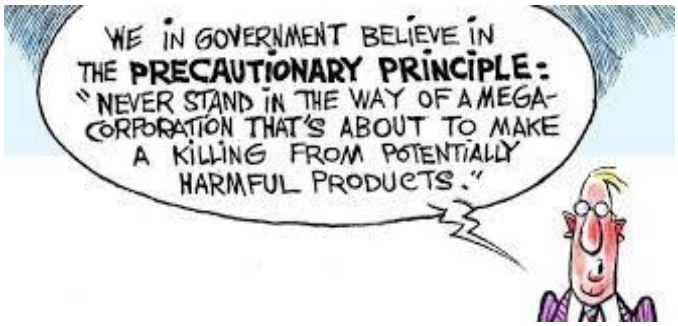
As in school, so in universities. Imagine what happens when a hundred students simultaneously transmit data between themselves and their tutor, in a closed environment lecture theatre. The background level of radiation will spike. Students, like almost everyone else, also use their smartphones for keeping in touch with family and friends and for social media stuff. If you study all day on campus, socialise with friends near campus grounds and sleep on campus, you are exposed to an almost constant barrage of pulsed microwave radiation. I often wonder what university chancellors think about when they see headlines that say, "rare glioblastoma brain tumours increase 1000% in 10 years in all age groups", "depression, students and social media statistics" etc. Do they not stop to think that perhaps the ways in which universities have embraced the new internet technologies could one day lead to toxic consequences to the very people they are supposed to steward?

Here are a few questions any parent or student can ask university administrators: (a) how far away is student accommodation to the main computer suites that house WI-FI transmitting and ancillary equipment, (b) how far away are the WI-FI 'hotspot' antennas in relation to my accommodation building, (c) please ask administrators if they are aware that exposure to microwave radiation from 900 MHz and upwards is biologically dangerous because we now have 'clear evidence' that exposure to microwave radiation induces rare brain tumours and heart cancers (see link here: http://microwavenews.com/news-center/ntp-peer-review-sees-tumor-risk) and (d) ask your chosen university administrators whether or not they are aware of a condition called EHS (electro-hyper-sensitivity) and if they are clued up, whether or not they have any areas on the campus free of microwave radiation.

With regard to the situation at Bristol University which is actively researching 5G propagation issues and regardless of how much research money is tied up with contracts from the telecoms industries, the safety and well-being of both students and staff should be uppermost. In that sense, I would have thought that any researcher or institute involved in the use of microwave radiation for internet connectivity issues would or should be aware of all potential safety issues. If they were, some form of environmental assessment to reduce exposure would or should be agreed before the research contracts started? Students today face many different pressures in staying safe, sane and happy. It is statistically probable that in any population exposed to novel frequencies that some individuals react first to these pollutants. These individuals have a condition called EHS or 'electro-hyper-sensitivity' – they are the canaries in the coal mine. This condition is recognised as a disease in the Nordic countries but nowhere else. Many of our students are still kids in the sense that their biology and immune system are not fully developed. I wonder what percentages of students are electro-sensitive? None of the responsible 'safety' organisations or regulatory bodies adequately address any of these issues. If these bodies continue to keep their heads stuck in the sand, our young ones will continue to stress unnecessarily and in extreme cases die.

Siwards Water Tower, York University UK with full complement of microwave radiation-emitting antenna hardware

Is it not time to use the precautionary principle? It has taken over 25 years just for the telecoms industries to admit that exposure to pulsed microwave radiation causes cancer. Do we have to wait another 25 years before they admit that this form of radiation is detrimental to our psychological well-being? Over here in the UK, the telecoms industries splice ELF (extremely low frequency) signals of about 16 Hz onto the main microwave carrier frequency. A frequency of about 16 Hz is within our brainwave activity spectrum. For argument's sake, if you increase the amplitude of these ELF signals whilst the main carrier frequency is also pulsed, will these signals not affect our psychological well-being?


WE IN GOVERNMENT BELIEVE IN THE PRECAUTIONARY PRINCIPLE: "NEVER STAND IN THE WAY OF A MEGA-CORPORATION THAT'S ABOUT TO MAKE A KILLING FROM POTENTIALLY HARMFUL PRODUCTS."

https://www.telegraph.co.uk/women/life/do-british-universities-have-suicide-problem/
https://www.independent.co.uk/news/uk/home-news/investigation-five-suicides-york-university-one-year-mental-health-a7328836.html

Student guide – how to reduce exposure from mobile phone mast signals at UK university campuses (2018)

This is a 'one-of-a-kind' student guide and it is based on ensuring the university you study at understands the dangers from mobile phone masts and WI-FI router antennas. If the university truly understands the dangers of microwave radiation, it would not permit the installation of mobile phone masts on its campus and would pro-actively ensure that exposures to microwave radiation are kept as low as reasonably possible. They can do this by hardwiring internet connections and reducing/eliminating WI-FI-enabled teaching aids. The purpose of the table below is for you to question university administrators before you start your studies – good luck in all your choices.

This guide gives information on the number of mobile phone masts on and around 44 UK university campuses. Exposure to cell phone frequencies may give rise to irritability, stress, anxiety, depression, as well as brain and heart tumours. Unfortunately, mobile phone companies aggressively target young people at university including their halls of residence. The following data illustrate the sad fact that telecoms companies in almost all situations erect their cell phone towers on campus or around the campus boundary. Even where student accommodation is off-site, the telecoms companies follow students by erecting mobile phone towers at off-campus student halls of residence.

The mainstream media do not tell you but the latest scientific data of 2018 show ''clear evidence'' of the carcinogenic nature of microwave radiation – the same frequencies used by mobile phone companies. There are also numerous studies linking increase in stress, anxiety, depression and other psychological problems in relation to exposure from cell phone frequencies i.e. microwave radiation. The solution for university administrators is fairly simple: examine the use of Wi-Fi, remove any on-campus mobile phone masts and come up with a plan to reduce exposure to these highly damaging radiations. Simply put, replace Wi-Fi with hardwired alternatives such as optical or Ethernet cabling and ensure the campus is as free from mobile phone masts as humanly possible.

This guide illustrates the number and placement of mobile phone masts in and around some of the biggest UK university campuses. As a rough rule of thumb, if you live or study within 300 m of a mobile phone mast, you are in a field of high signal intensity. Ideally you should spend as little time as possible within 500 m of any mobile phone masts or emergency service locations such as police, fire and ambulance stations.

In the following images. The boundary of university campus is shaded grey and the round blue dots signify a mobile phone mast. The yellow dot approximates the centre of campus and is based on the postcode. Check the scale at the bottom left of the map to see how far a mast is from your campus, halls of residence and study areas. Some universities do not have a clearly identified centre of campus and in these situations, the grey boundary is missing. Generally speaking, if your chosen university lies close to or within the urban environments of city centres, it is here that the highest density of mobile phone masts and the distance between each mast can be as close as 50m apart.

Questions to ask university administrators

You can also ask the university administrators the following questions to ensure they are aware of the dangers and hazards living close to mobile phone masts and associated transmitting equipment.

Significantly, what are future university plans on allowing the installation of 5G mobile phone transmit masts on or around the campus border? Are university administrators in dialogue with the telecom companies in understanding differences between 4G and 5G masts with their own particular infrastructure needs? In other words, do university administrators understand that 5G mobile phone masts are much bigger and wider than 4G masts allied with the fact that the 5G masts will be located much closer to student halls of residence and within the university itself?

•do they know anything about the condition of EHS (electro-hyper-sensitivity). Does the university have a policy in dealing with these issues and if so, what are they?
•do they have low exposure zones for sleep/and or study, on and around campus where mobile phone telephony, tablets and Wi-Fi are banned.

- *what percentage of tuition involves the use of Wi-Fi, Internet use and/or tablets?*
- *what percentage of university buildings require a card to gain entrance and exit*
- *what percentage of university, rooms, halls and dining areas are hard-wired for Internet connectivity?*

If the answers to the above are muddy, confused with a dash of irritability thrown in, please be careful what you sign up to. University environments are bad enough simply with 3G and 4G infrastructure, yet, the introduction of 5G hardware will take everything to a much higher level.

The table below should be treated with caution. Even in situations with no phone masts on campus and few phone masts off campus, exposure from microwave radiation is not necessarily absent or low. In many situations, both on and off campus, a crucial factor of exposure from microwave radiation could be due to a mobile phone mast located on a hill one mile away which is transmitting a signal of similar intensity as a mobile phone mast on campus borders. It is also good to remember that sub-thermal biological effects arise from exposure to microwave radiation. In other words, in the absence of scientific data to say otherwise, any exposures higher than cosmic background should be treated within the Precautionary Principle.

In essence, as you walk around the university campus:

- *find out where you will be studying and living. An on-campus mobile phone mast means the background level of pulsed microwave radiation is relatively high.*
- *if you plan to live off-campus in designated student accommodation or halls of residence, make sure it is clear of mobile phone masts. As a general rule of thumb, it is advisable to keep at least 500 m between you and a mobile phone mast, especially in residential areas.*
- *ensure your academic block is well away from any of the high power university WI-FI router terminals*

I explain the significance of TETRA masts and associated technologies at the end of this section.

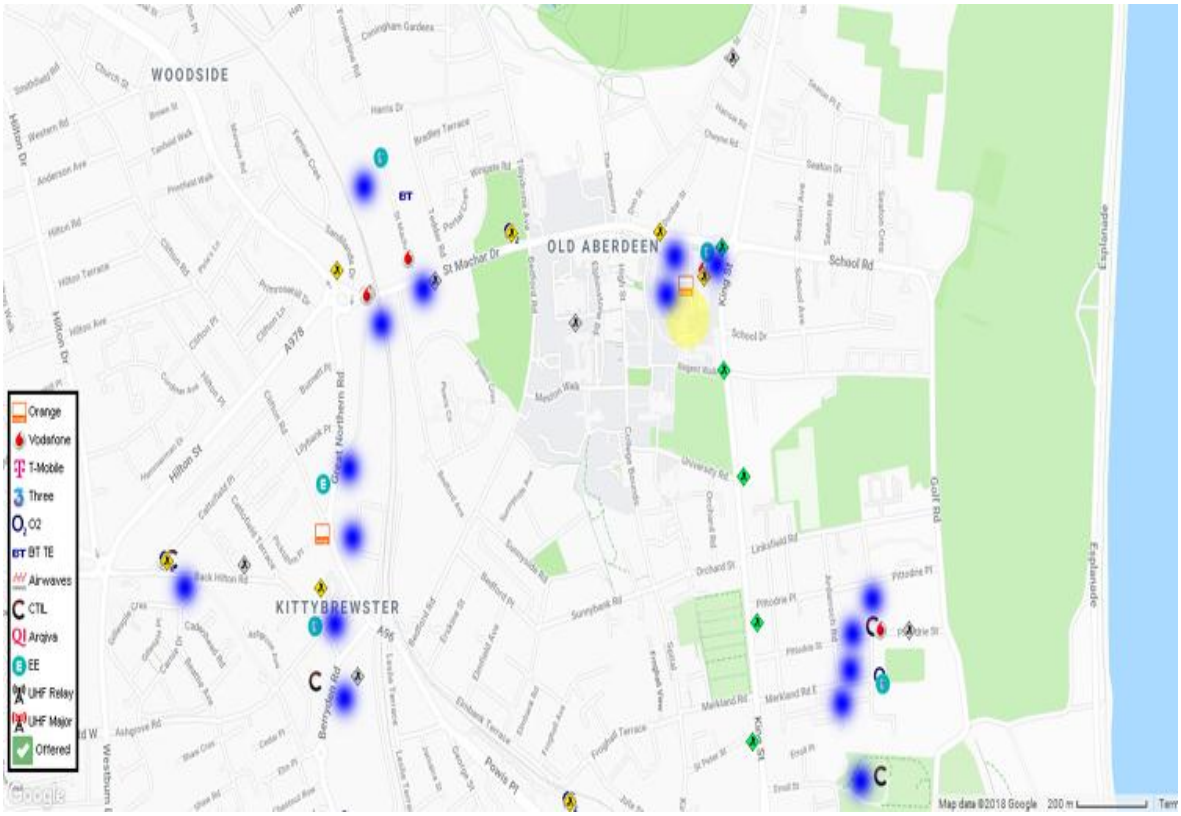
Table 1
Number of on and off-campus mobile phone and TETRA transmission masts in the immediate environs of

University	On campus mobile phone masts	Off campus mobile phone masts	Other sources of EMFs
Aberdeen	3	5	-
Abertay	0	20	-
Anglia Ruskin	0	15	-
Birmingham City Centre	2	28	-
Bournemouth	6	14	26m high mobile phone mast
Brighton	0	20	2 TETRA masts
Bristol	3	11	TETRA mast
Cambridge	n/a	23	-
Cardiff	7	12	-
Central Lancashire	4	37	2 TETRA masts
Coventry	2	12	-
De Montford	6	35	TV transmitter mast
Dundee	2	23	-
Edinburgh	11	19	TV transmitter mast
Essex	1	23	TV transmitter
Greenwich	0	18	-
Glasgow	13	8	-
Hertfordshire	2	34	TETRA mast
Imperial College	3	15	
Kent	4	8	38m mobile phone mast
Lancaster	3	7	Steel ring of electricity pylons
Leeds	8	9	-
Leeds Beckett	4	36	TETRA mast
Liverpool	5	18	-
Liverpool John Moores	0	23	-
Manchester	4	12	-
Manchester Metropolitan	6	14	-
Newcastle	4	18	-
Northumbria	4	28	
Nottingham	7	13	-
Nottingham Trent	2	33	
Oxford	4	28	-
Portsmouth	10	26	-

Queens University Belfast	1	18	-
Saint Andrews	2	5	-
Sheffield Hallam	6	23	TETRA mast
Southampton	4	11	TETRA mast
South Wales	0	17	-
Stirling	4	16	TV transmitter
Strathclyde	4	20	
Surrey	5	19	
University of West England	7	21	-
Warwick	14	17	TETRA mast on campus
York	0	9	TETRA mast

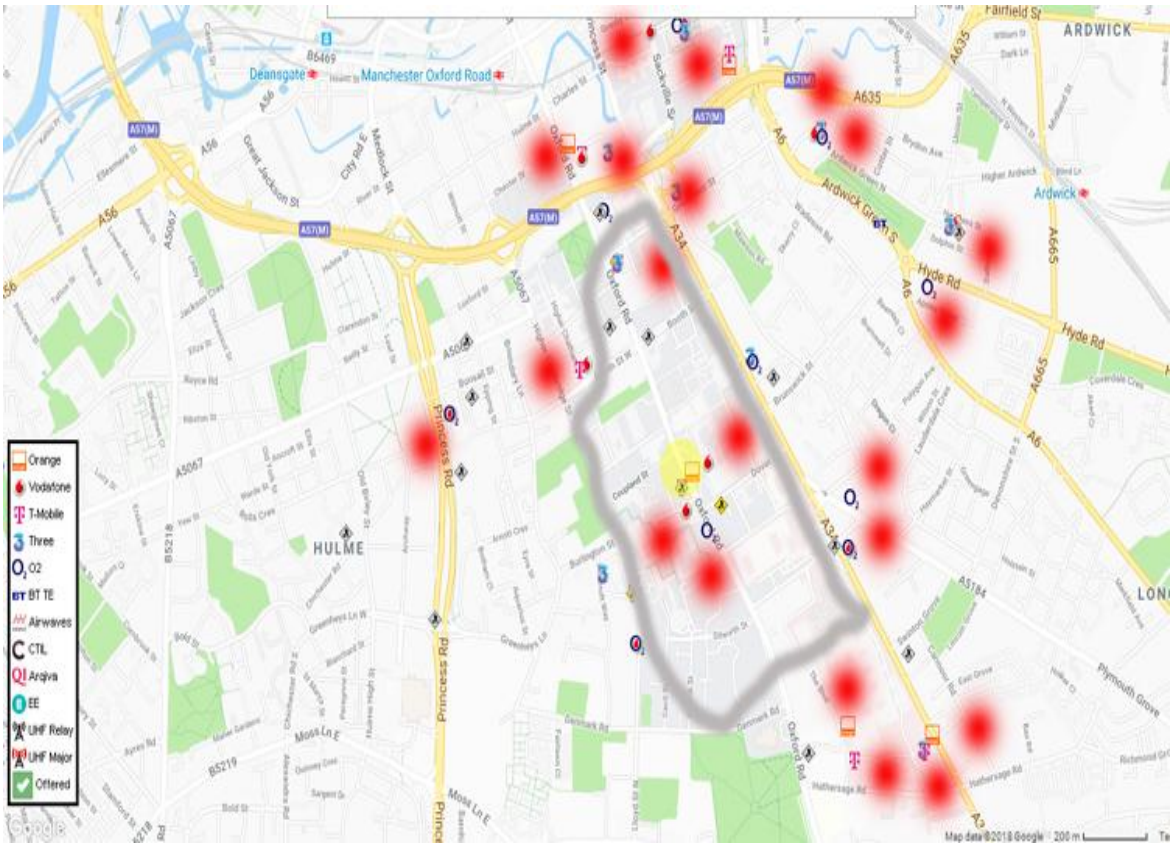
University of Aberdeen

There are three mobile phone masts on the campus of the University of Aberdeen. The ‘Orange’ mobile phone mast is 43 m tall and it must put out a terrifically strong signal throughout the campus and well beyond. In contrast, there are only five mobile phone masts within 500 m of the campus boundary.



University of Manchester

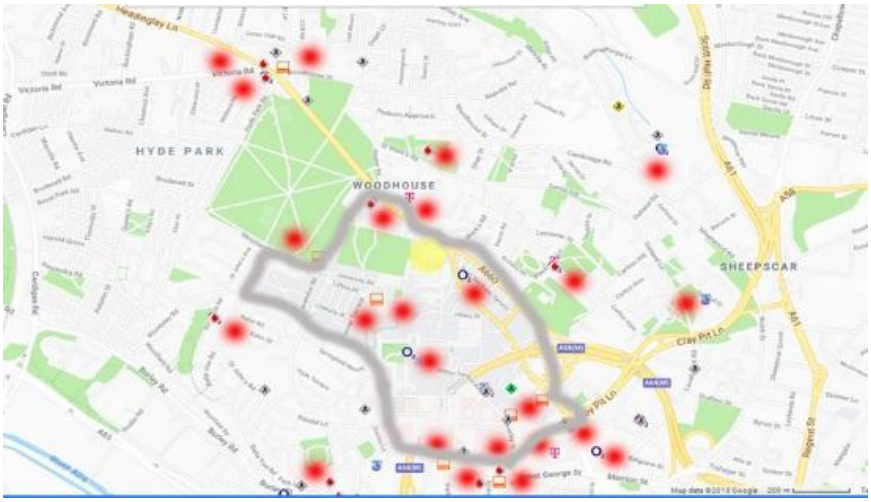
The grey line denotes the university campus and red dots denote on-campus mobile phone masts. The yellow dot approximates the campus centre.



There are 4 mobile phone masts on the University of Manchester campus with at least 12 other mobile phone masts within 500 m of the campus boundary. Student halls of residence to the North, East and south of campus are encased within a mess of mobile phone antennas. It is highly likely that pulsed microwave radiation will be high across most of the campus. If I was electro-sensitive I would be looking for accommodation to the south east of the campus and I would be wary studying anywhere within a 500 m radius of the on-campus mobile phone masts.

University of Leeds

There are at least 8 (eight) on-campus mobile phone masts and at least a further 9 (nine) mobile phone masts within 200 m of the campus boundary. Exposure from the high signal intensity of the on-campus mobile phone antennas must be very high.

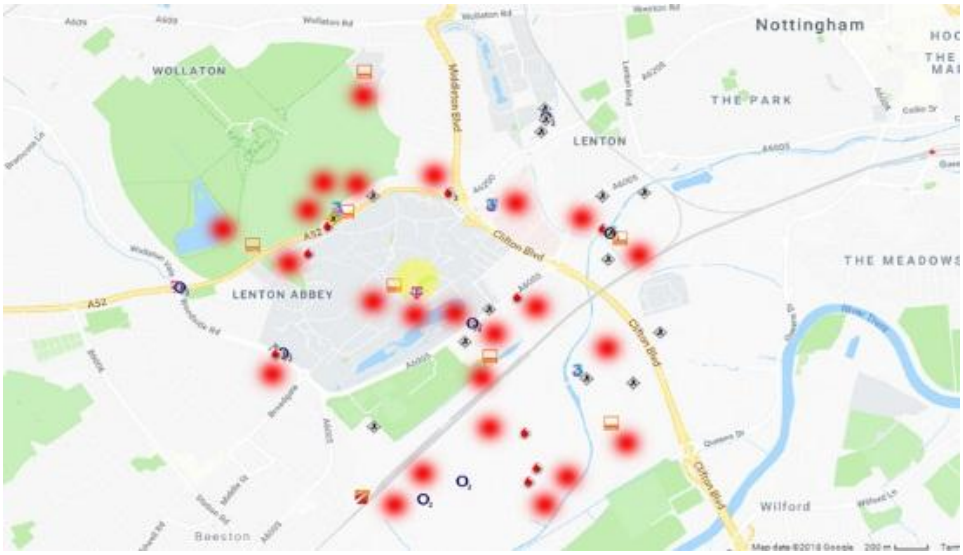


Manchester Metropolitan University

Manchester Metropolitan University has at least six mobile phone masts on campus and at least 14 cell phone masts within a 500 m radius. Clearly, the campus itself is a zone of high signal intensity microwave radiation particularly to the north of the campus and beyond. This is an inner-city campus which is surrounded by fairly heavy infrastructure i.e. whether one is on campus or its surrounding areas, the signal intensity of pulsed microwave radiation will be high – no place to hide.

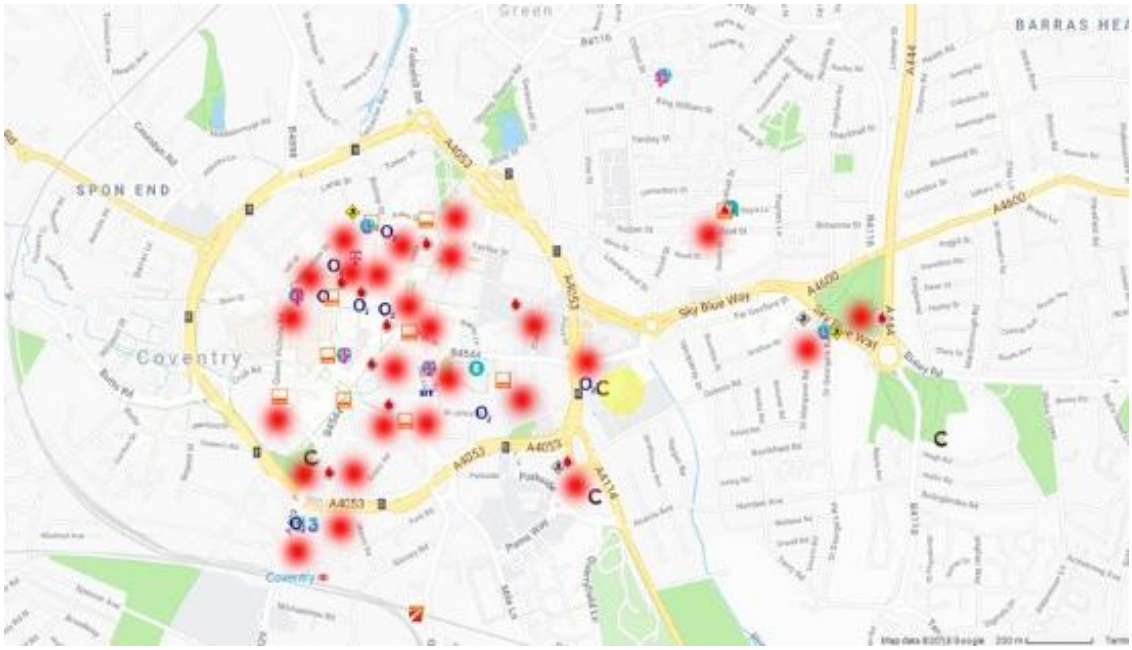
University of Nottingham

There are 7 mobile phone masts on campus and at least 13 mobile phone masts dotted within 150 m of the campus boundary. This is a typical ‘honey spot’ approach the telecoms industry employ when installing mobile phone masts around university campuses. Note the number of Vodaphone cell phone masts on the same side of the campus spaced at 50 m and 100 m of each other – this is telecom-overkill.

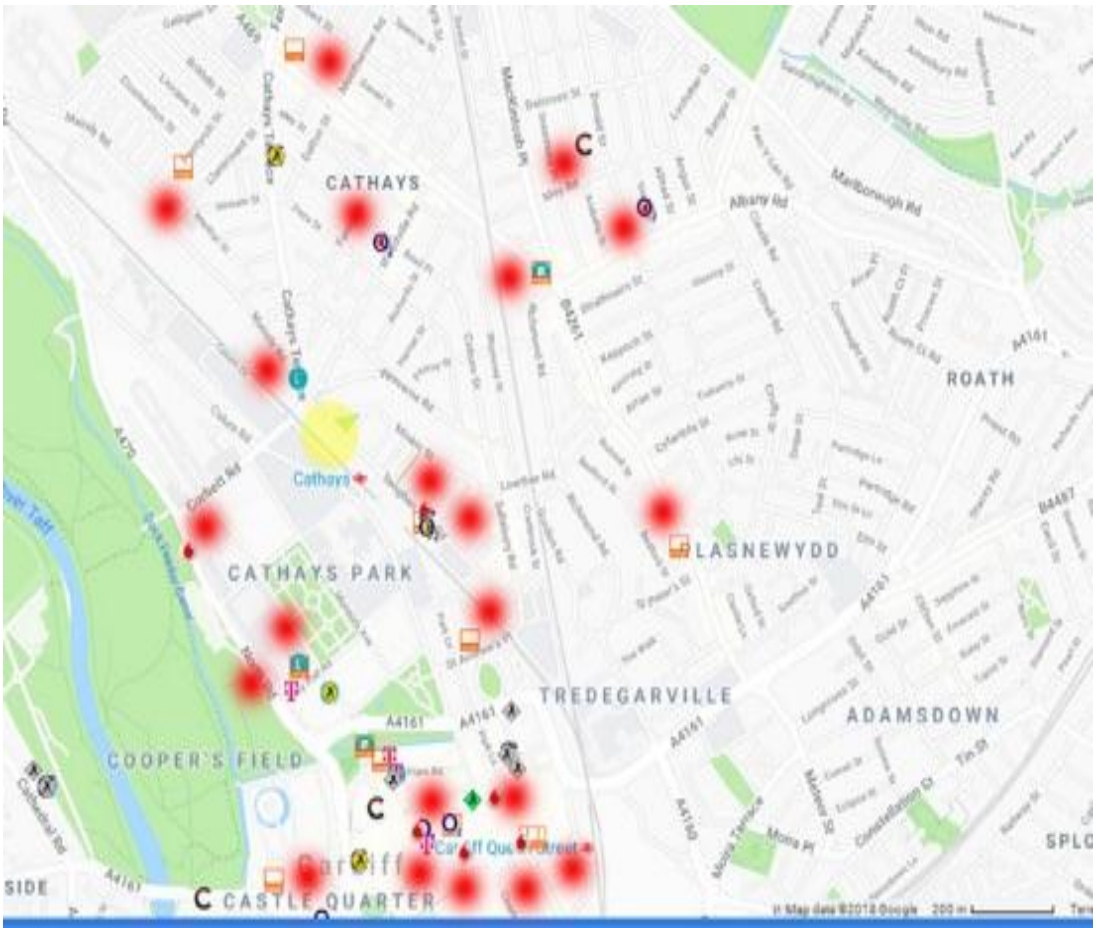


Coventry University

Coventry University has 2 mobile phone masts on campus and about 12 other mobile phone masts within a 300 m radius of its campus boundaries. Be wary of student accommodation to the north and northwest of the campus grounds. It appears from the map that the background level of pulsed microwave radiation is quite high.



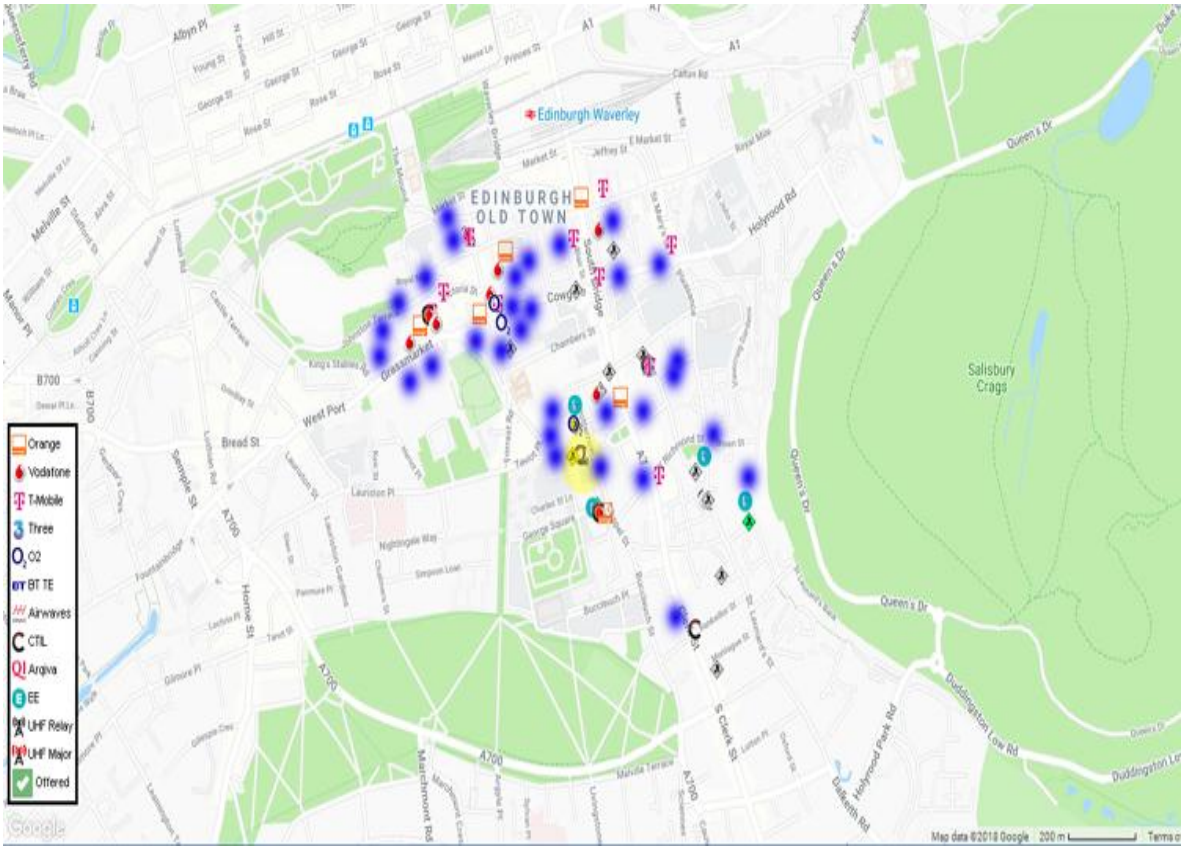
Cardiff University



There are 7 mobile phone masts on campus grounds of Cardiff University with at least 12 other mobile phone masts within a 400 m radius of the campus boundary.

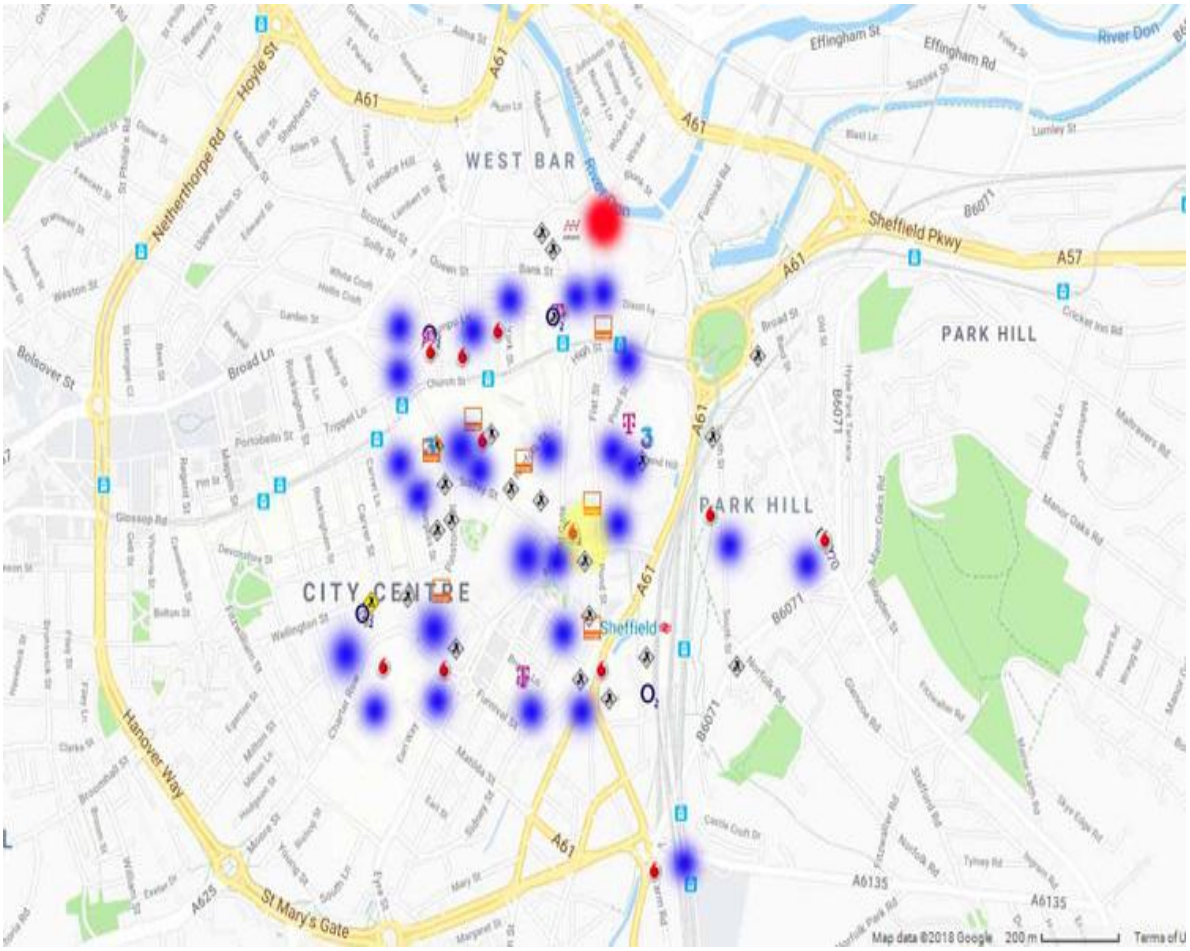
University of Edinburgh

The University of Edinburgh lies on a sprawling campus with at least 3 distinct student areas and it is not possible to pinpoint a central point within the university campus boundaries. The campus itself holds 11 (eleven) mobile phone company antennas. One mast is installed on Appleton Tower, the height of this mast is 46 m above ground level. This one mast must put out a huge signal across all campus areas and beyond. Note the density of mobile phone masts around campus boundaries and it is clear to see that signal density of pulsed microwave radiation is probably quite high. I estimate a background level between 2 volts – 5 volts per metre squared. The Canongate digital TV transmitter is also located in close proximity to campus grounds. The mast is 69 m high with a transmit frequencies between 700 MHz – 780 MHz. This transmitter will add to the already high level of electrosmog.



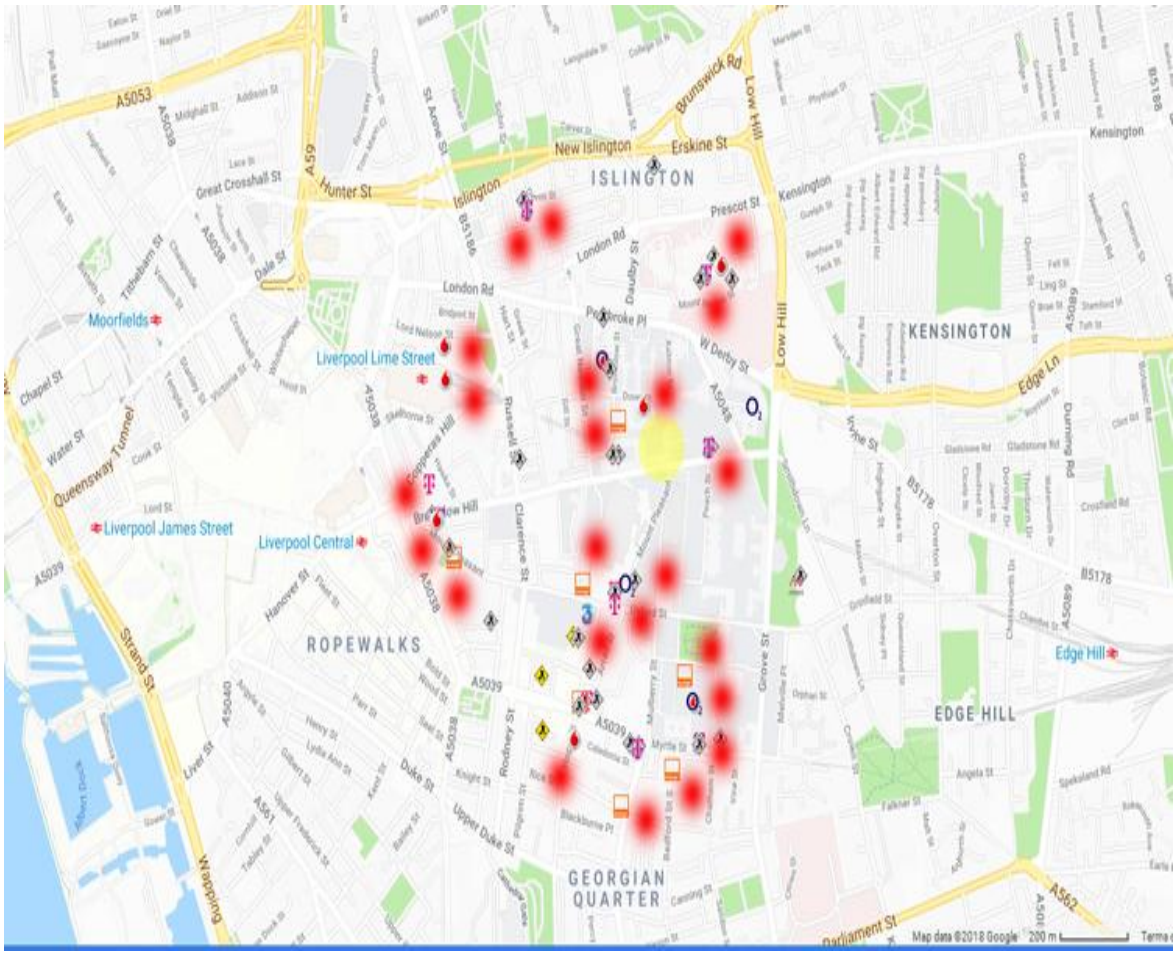
Sheffield Hallam University

There are at least 6 mobile phone transmit antennas on the campus of Sheffield Hallam and at least 24 mobile phone masts within 500 m of the campus. This is an inner-city university with a very high density of mobile phone masts to the north and west of the campus. Background levels of pulsed microwave radiation within the entirety of this campus and beyond will be high. There are also police TETRA antennas within 250 m of the campus boundary.



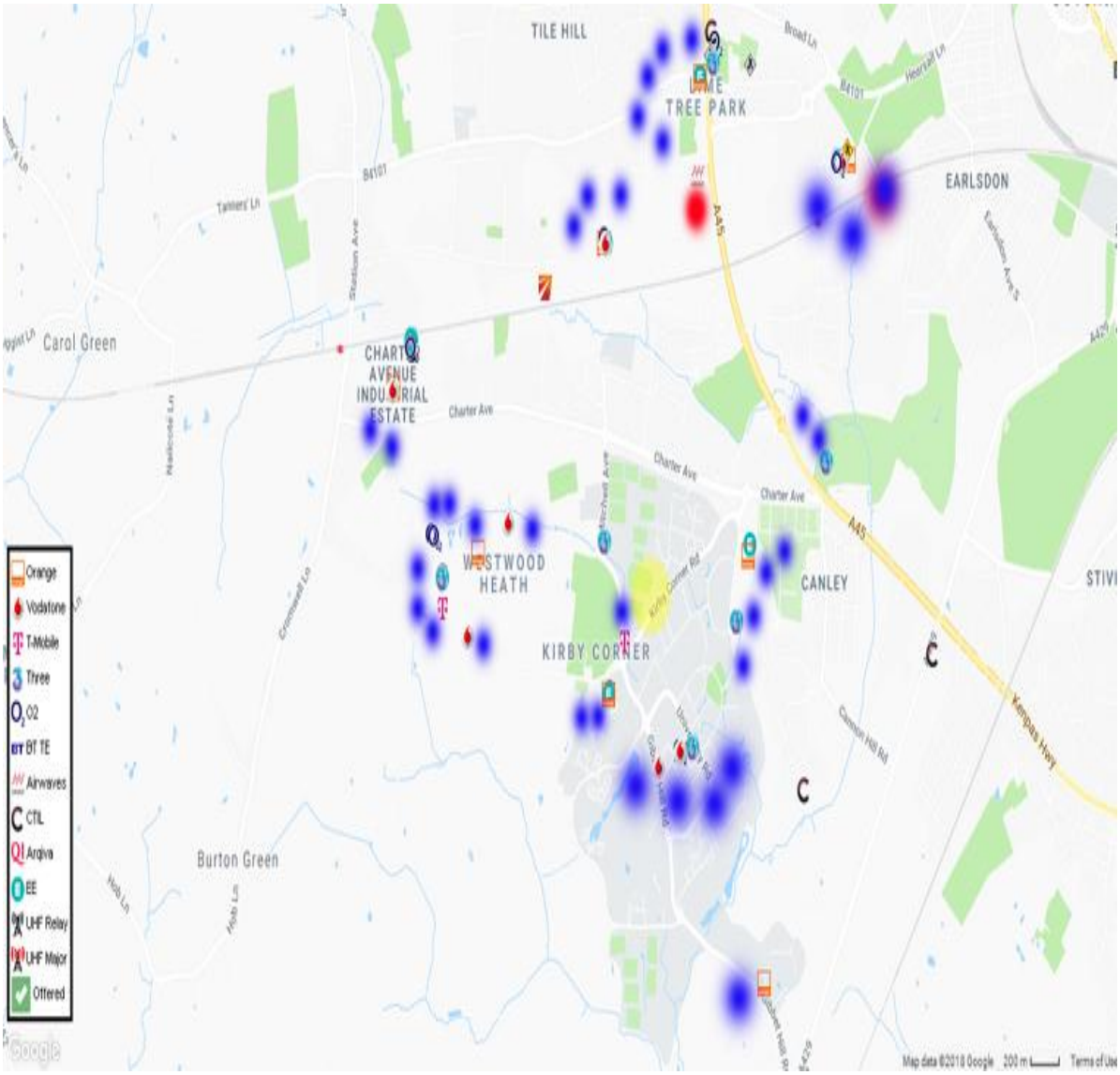
University of Liverpool

There are 5 mobile phone masts on the campus of Liverpool University. There are also 18 other mobile phone masts within a 400 m radius of the campus. As with most city centre university campuses the telecoms companies install masts on and around the student campus perimeter, almost willy-nilly. I estimate background levels of pulsed microwave radiation to be quite high.



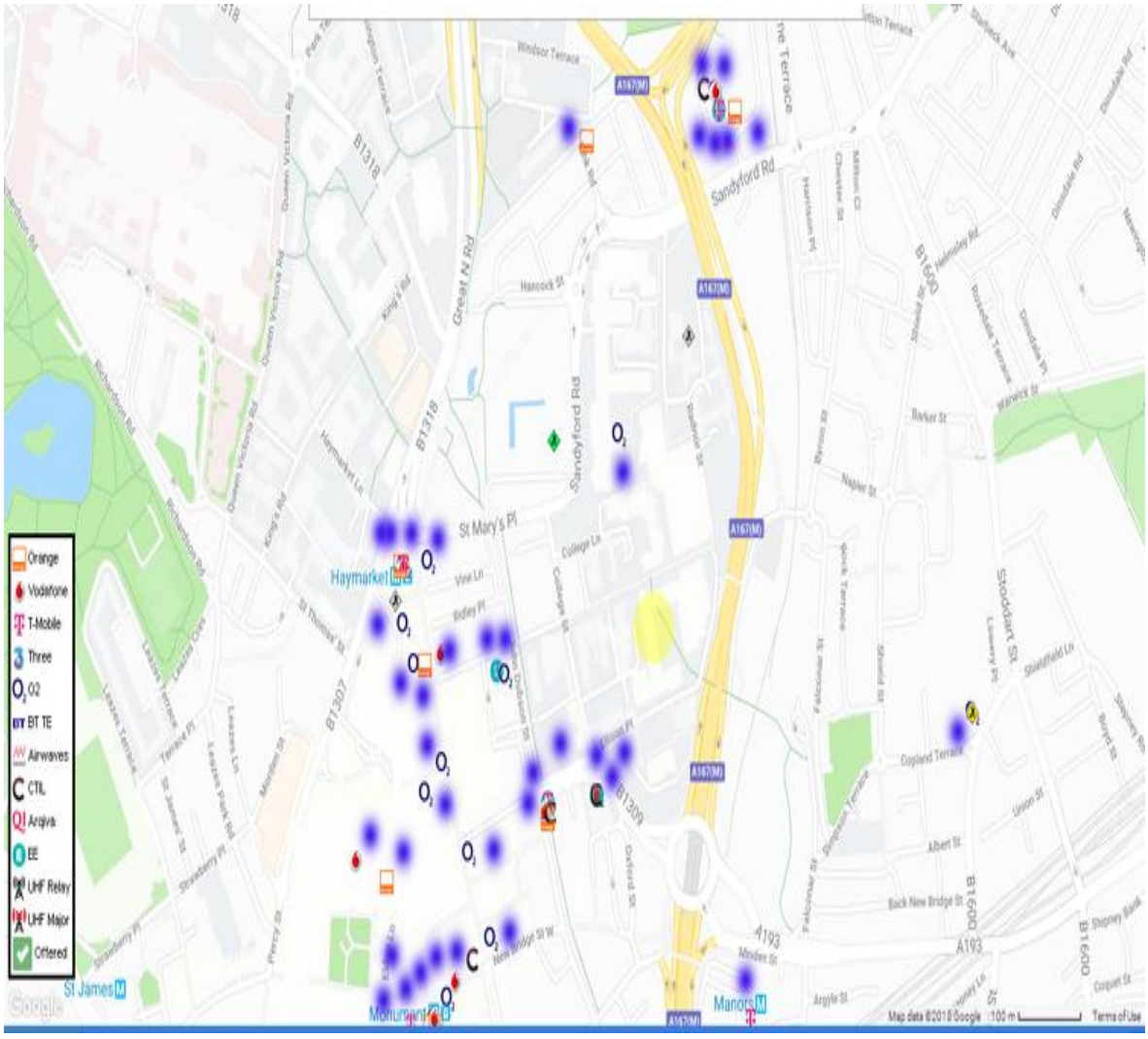
University of Warwick

The University of Warwick has 12 mobile phone company antennas installed on its campus including a police TETRA antenna system. The police antennas are installed 26 m above ground level, hence a massive signal within and around campus. There are at least six mobile phone masts around the perimeter of the University of Warwick campus. There are also at least 12 other mobile phone masts within 300 m of the campus boundary. That is a lot mobile phone infrastructure in one site. I would love to carry out an EMF survey of this particular university campus. If you suffer from EHS, try and ensure you pick accommodation well away from the mess of mobile phone masts within and around the university campus.



University of Newcastle

The University of Newcastle has 5 mobile phone company antennas on campus. That said, the mobile phone company O2 has 8 (eight) mobile phone masts within 50 m of each other and for the life of me cannot understand why there are so many masts located in one small area. Another example of mobile phone mast madness and over-kill.



University of Abertay

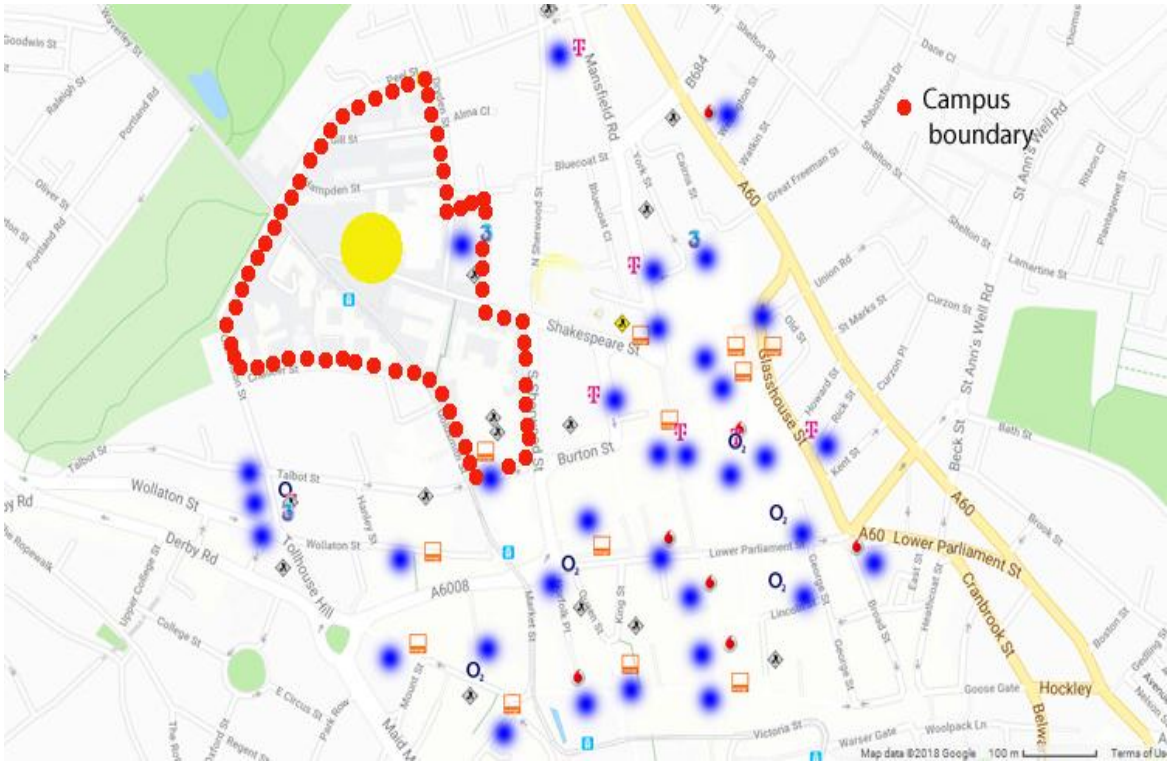
There are no mobile phone masts on the campus of the University of Abertay, yet there are twenty mobile phone masts within a radius of 500 m from the campus boundary. If we look at what is happening within 300 m of the campus we easily see that Vodaphone and T-Mobile have installed multiple antennas within 25m – 45 m of each other in the south-south east area off-campus. . There is no technological reason why the telecom companies site so many mobile phone masts in one small area. This type of mast deployment leads to extremely high levels of electromagnetic smog, and it will be almost impossible to get away from these multiple sources of electrosmog. To their credit, the University do not irradiate students who live off-campus to the south east of the university. The north, west and south west of the campus appear to be no-go zones for anyone stressed by microwave radiation.

Nottingham Trent University

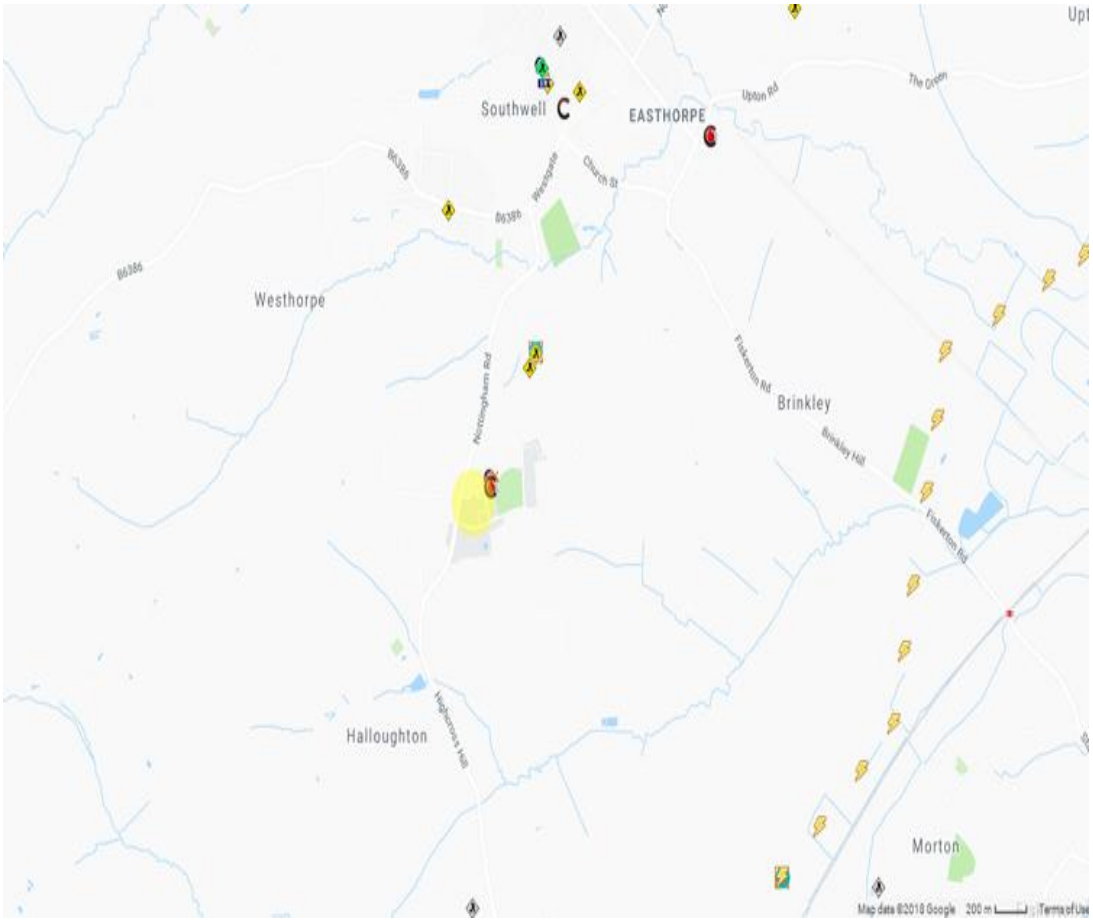
Nottingham Trent University is an inner-city university with probably the highest density of mobile phone masts on and around their various campuses discovered thus far. Figure 1 gives an overview of the mobile phone landscape with up to 33 mobile phone masts within 400 m of the campus boundary. There are quite a number of 'cluster' antennas at the south-western tip of the City Campus boundary no more than 75 m apart from each other. The student halls of residence at the Creative Quarter Campus host at least 6 mobile phone masts within 100 m of its boundary. In contrast, the Brackenhurst campus has just one mobile phone mast. I was unable to get any data or information on the number of mobile phone masts for Clifton Campus.

There is also a police TETRA transmitter mast about 350 m from the City Campus boundary which adds to the already high level of ambient electrosmog. If this university is your number one choice, I suggest sleeping quarters at the Brackenhurst campus because the City and Creative Quarter Campus and all points in-between will be subject to extremely high levels of pulsed microwave radiation.

Figure 1: Overview of mobile phone mast at NTU City and Creative Quarter Campus

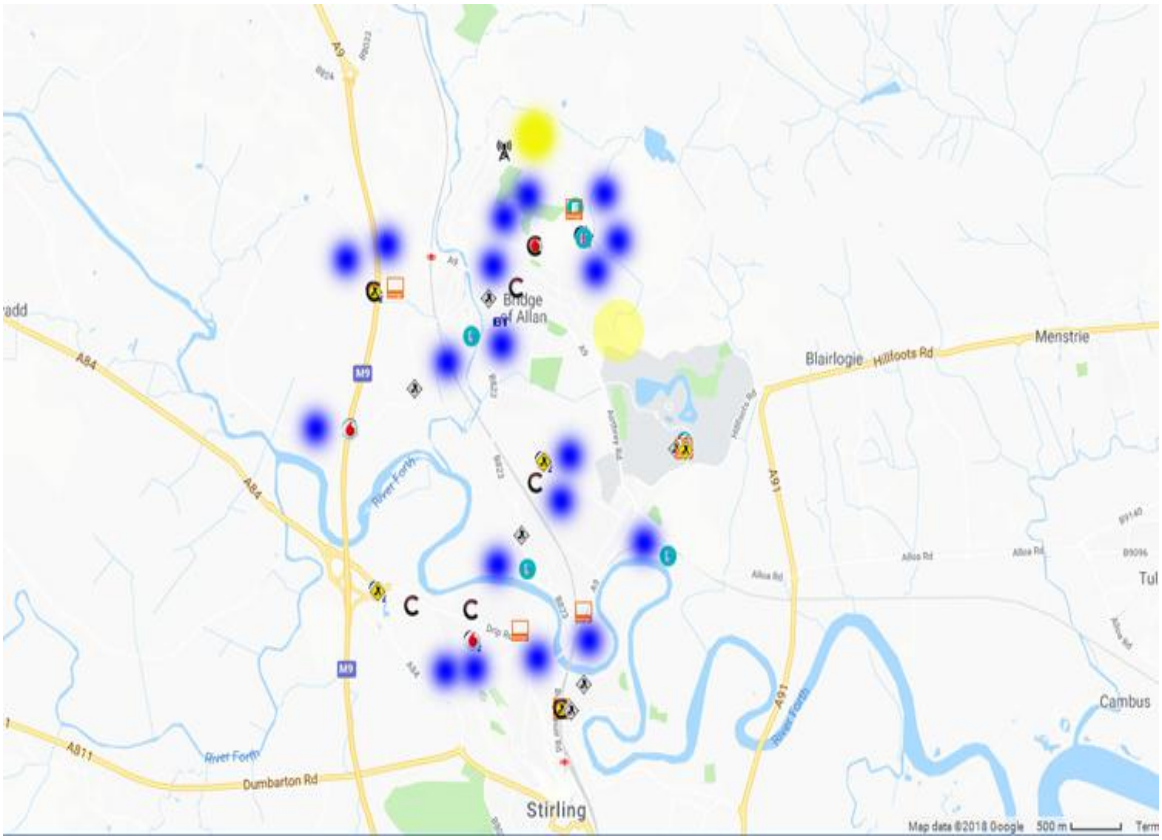


Nottingham Trent University – Brackenhurst Campus



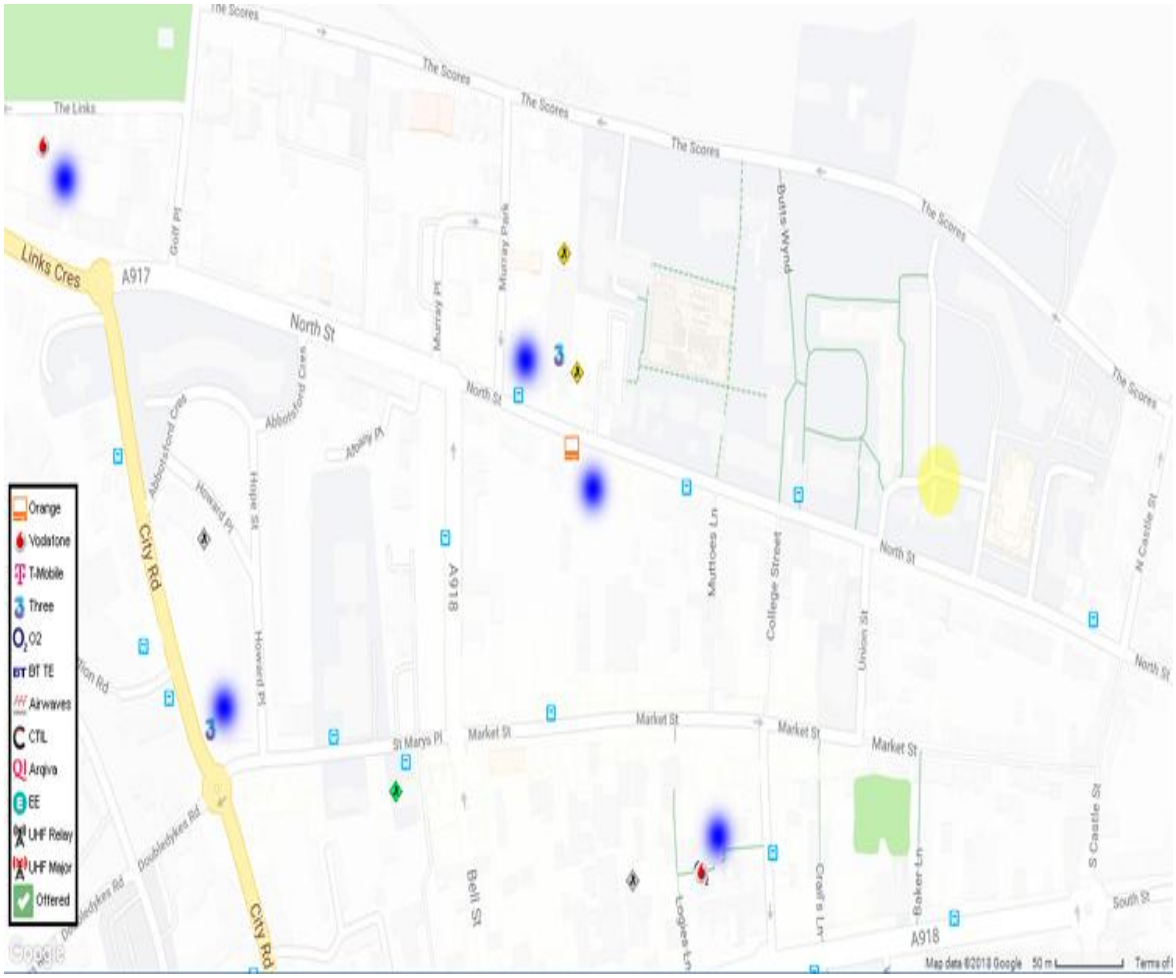
University of Stirling

Stirling University has 3 mobile phone masts to the southwest of its campus which is well away from the main site. There are however, at least 18 other mobile phone masts around the environs of the campus. The on-campus mobile phone masts are about 400 m from the student halls of residence. There is a digital TV transmitter mast about 1 km from the campus which is 134 m above ground level. The transmit output is relatively small at 2 watts but the TV signal contributes to the generally high level electrosmog, particularly to the north, north west and south west of campus.



University of St. Andrews

Saint Andrews University has two on-campus mobile phone masts with at least 5 other masts within a 500 m radius of its campus boundary. The density of mobile phone masts on and around the campus is relatively low compared to other university campuses. The significant issue is the siting of a mobile phone mast in the immediate environs of student accommodation i.e. Blackadder halls of residence with a further 3 masts within 300 m of the halls of residence. If you suffer from EHS, make sure you look for accommodation to the south east of campus.

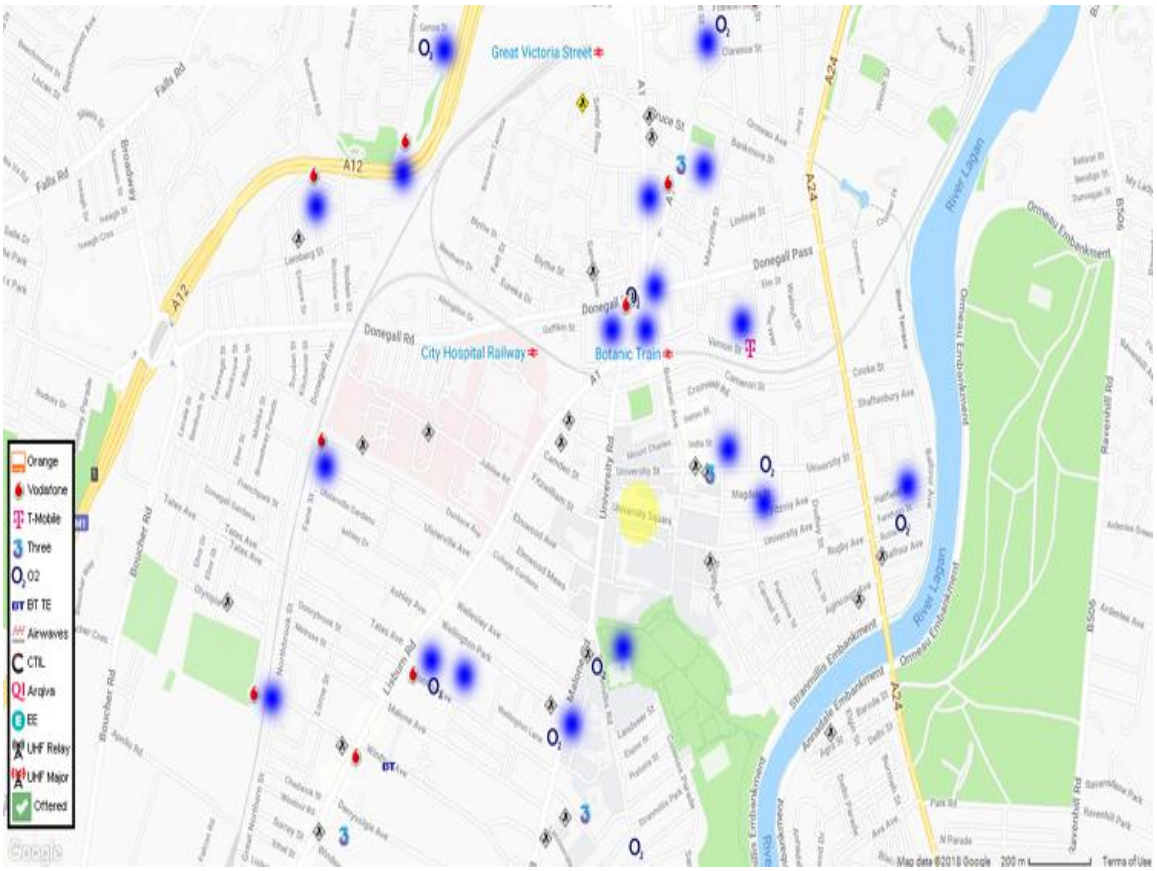


The St. Andrews halls of residence and location of the mobile phone mast is illustrated below.

University of Saint Andrews, Blackadder halls of residence

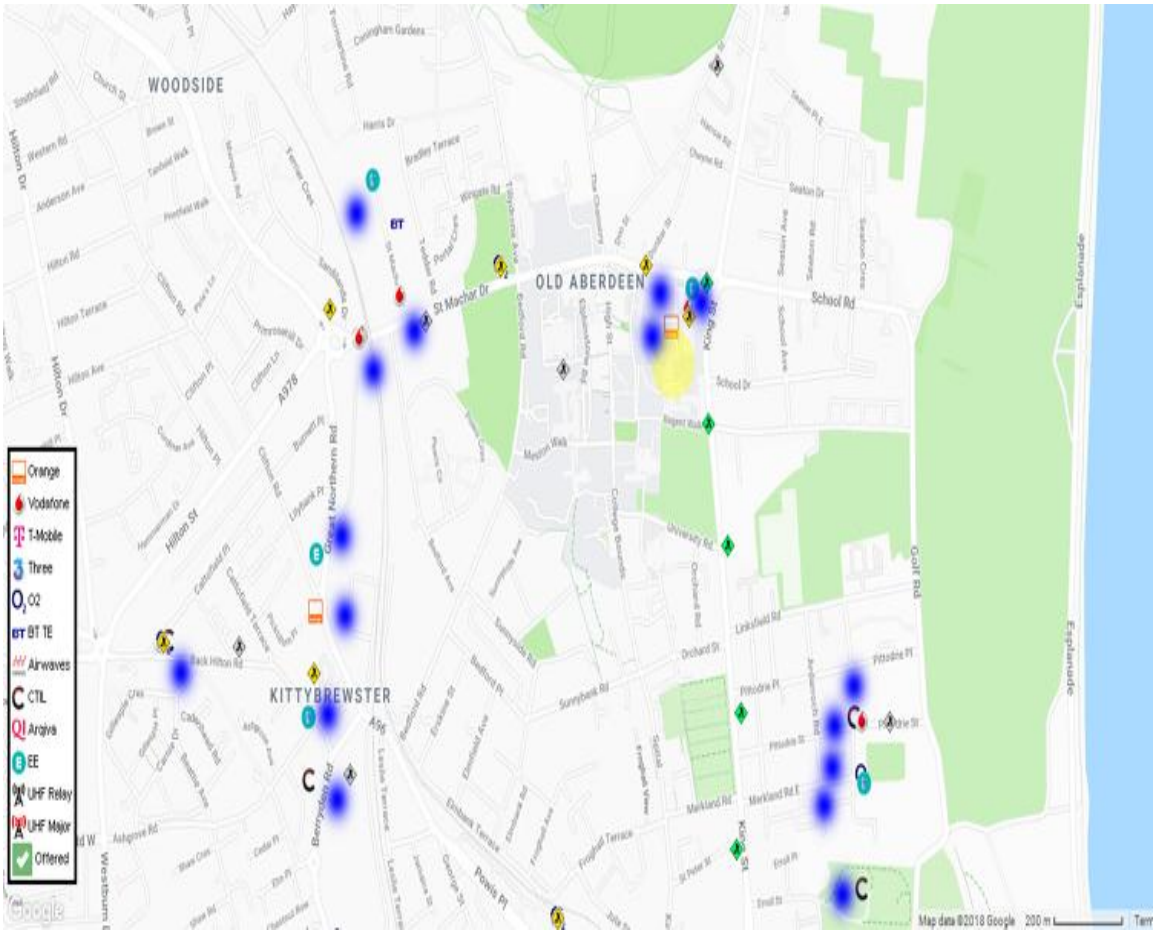
Queens University Belfast

There is one mobile phone mast installed at the main block of Queens University Belfast and at least 18 mobile phone masts within 400 m of its campus boundary. The Mount Charles, Elms Village and College Garden student halls of residence all have 1 mobile phone mast sited in its immediate environs. Clearly, the telecoms companies target off-campus student accommodation when siting their mast infrastructure.



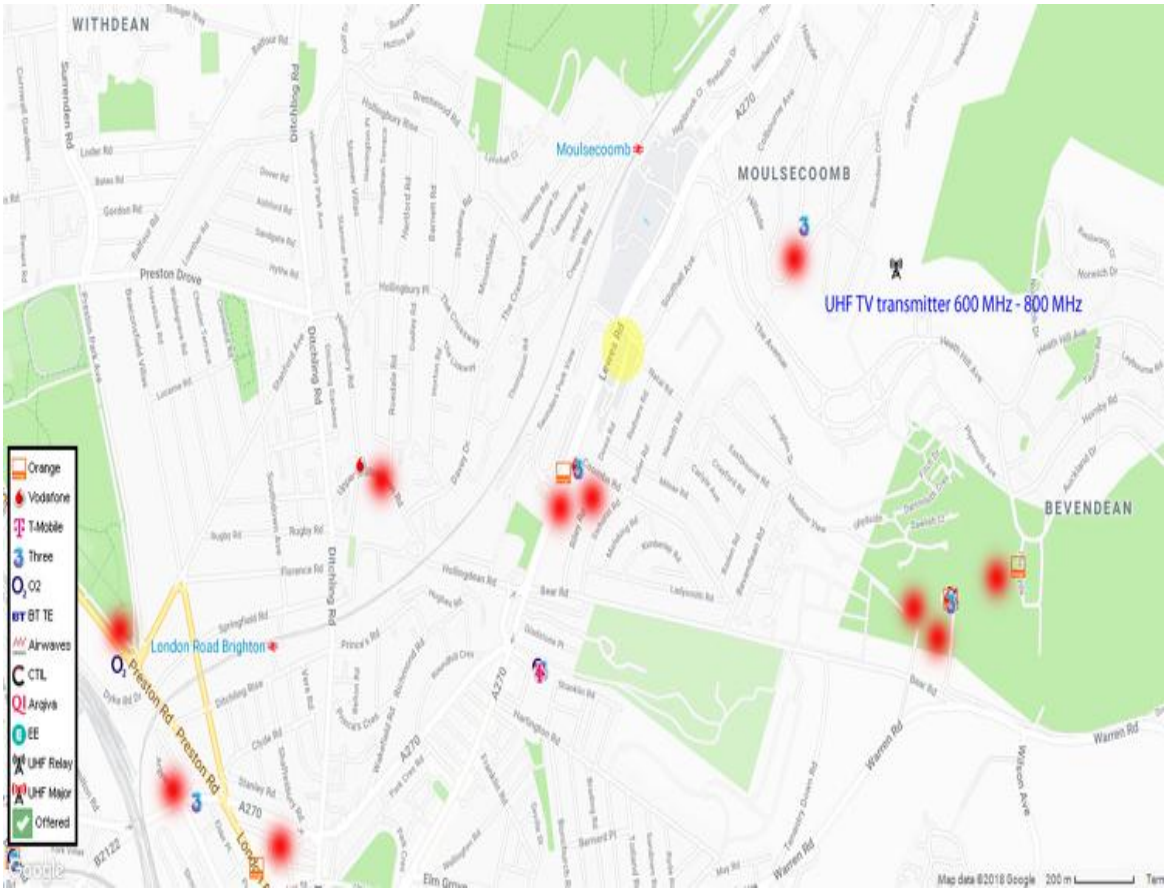
University of Aberdeen

There are three (3) mobile phone masts on the campus of the University of Aberdeen. An 'Orange' mobile phone mast is 43 m above ground level and it must put out a terrifically strong signal throughout the campus and well beyond. Consequently, there are only five mobile phone masts within 500 m of the campus boundary.

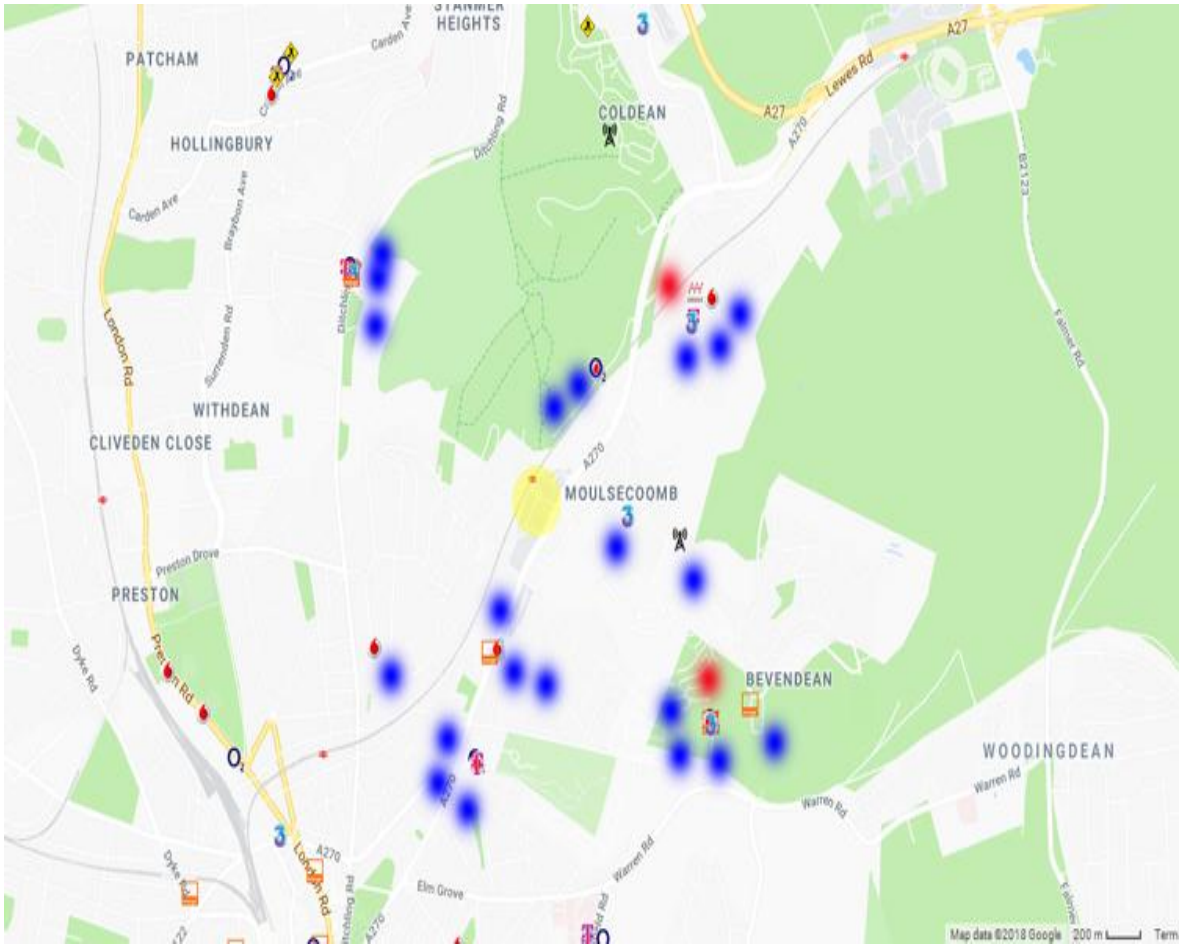


University of Brighton Moulsecoomb campus

The Moulsecoomb campus has no on-site mobile phone masts and 21 other mobile phone masts within a 400 m radius of the campus boundary. There are also two police TETRA antennas within 400 m of the campus. Finally, there is a digital TV transmitter 400 m away from the campus boundary. The transmit antennas are 83 m above ground level and this transmitter will put out a massive signal across and beyond the university campus. Suffice to say that electrosmog i.e. a combination of many different transmit and receive frequencies is unusual. The frequencies of not include mobile phone telephony at 900 MHz, 1.8 GHz and 2.4 GHz with associated ELF (extremely low frequency) signals around 17.6 Hz. The police TETRA transmitters use a frequency at 400 MHz with complicated encryption and other types of data which also include ELF signals. The TV transmitter broadcasts signals between 700 MHz – 850 MHz. A significant question of biological safety relates to the simple fact that to my knowledge, no-one has conducted studies to assess the 'cock-tail' effect of these frequencies on our biology, plants and animals. I discuss this issue towards the end of this section.



Moulsecoomb campus, University of Brighton

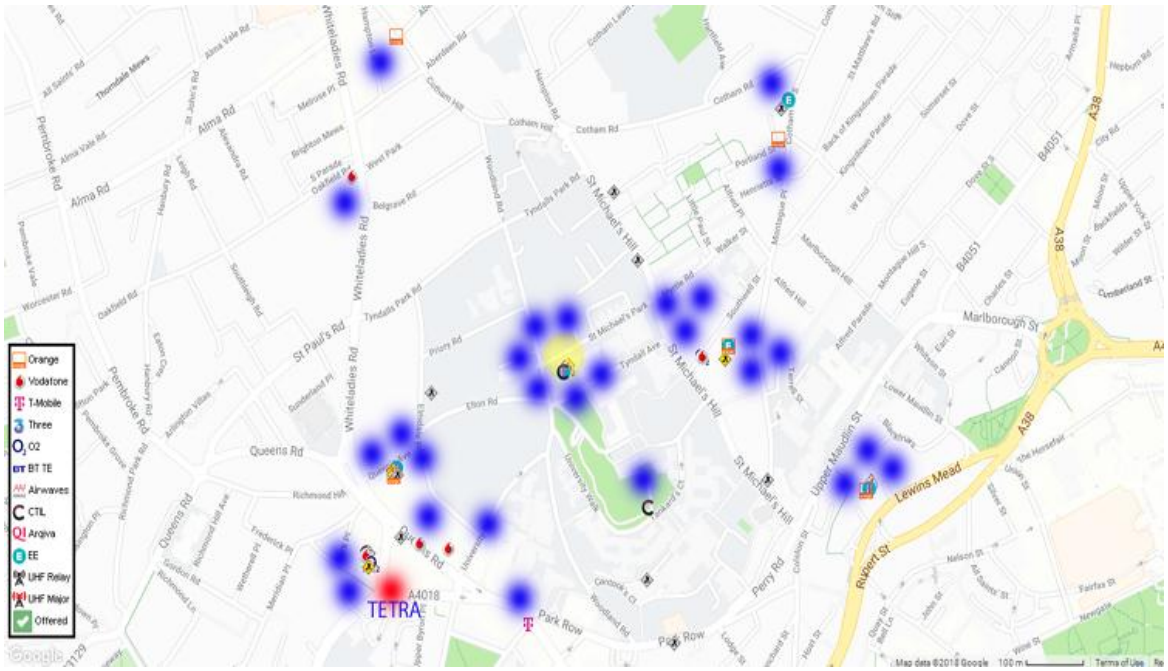


University of Bristol

Bristol University has seven (7) mobile phone masts on campus and about 17 other mobile phone masts within 100 m of the campus boundary. Six of the antennas within the campus are sited on top of Senate House and their height above ground suggest high signal coverage of pulsed microwave radiation across and beyond campus. Significantly, there is also a police TETRA mast approximately 80 m from the campus in Rupert Street. The height of this mast is 62 m above ground level. Typically, mobile phone and emergency services masts and antennas are 15 m – 25 m above ground level. The police TETRA antennas will transmit a powerful and robust signal to its local environs and well beyond. If you suffer from EHS or simply electro-sensitive, be very careful where you choose to live and study.

Based on the number of 'cluster' installations i.e. mobile phone masts installed within 75 m of each other, the telecom companies blatantly dis-regard biological safety in favour of getting their mobile phone masts as close to the university as possible. and also ensuring their antennas are pointing in exactly the direction they want i.e. towards campus and student halls of residence. I discuss 'mast-sharing' between different telecom companies towards the end of this section.

The 'cock-tail' effect of one area playing host to several different transmit and receive frequencies is similar to that playing out on the University of Brighton campus.



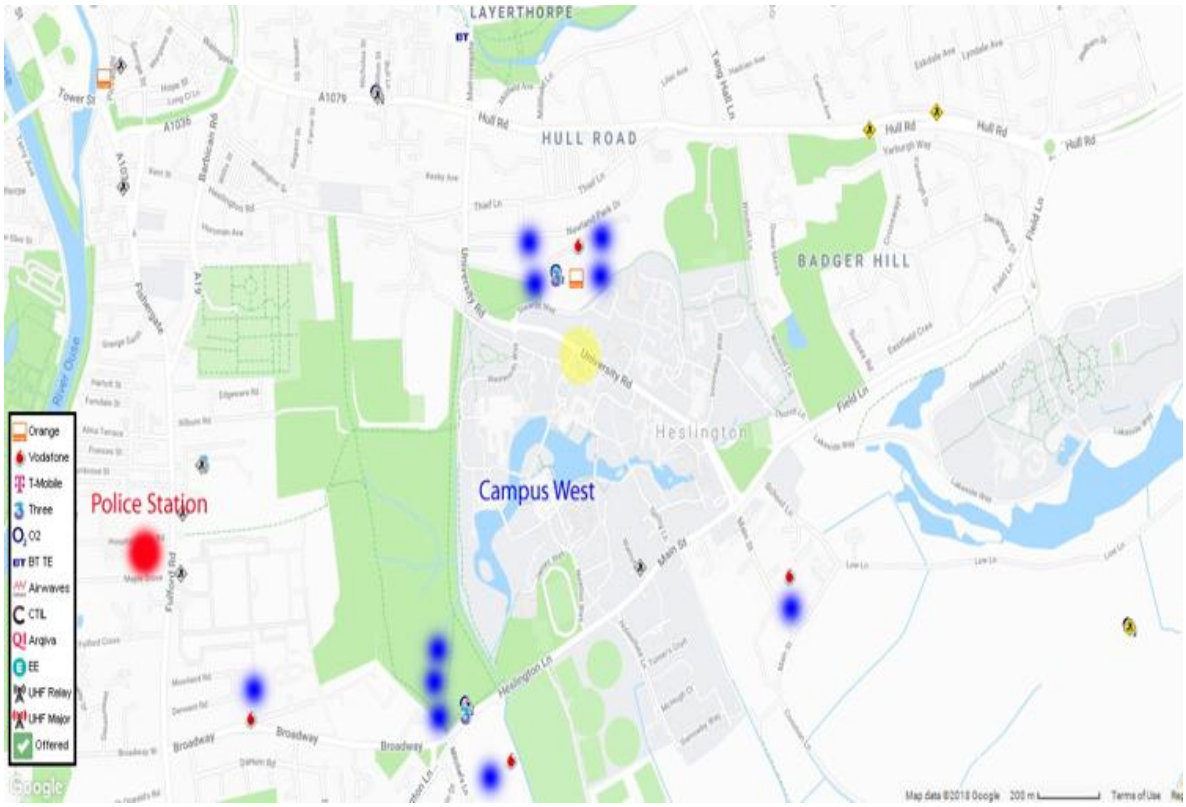
University of Bristol, mobile phone and police TETRA mast

University of York

Much of the student accommodation at York University is found at Campus West. There are no mobile phone masts on the campus with 9 mobile phone masts within 200 m of the campus border. There are four mobile phone masts on Siwards Water Tower which is 28 m above ground level. There is another mobile phone mast about 450 m from the campus boundary at a height of 34 m above ground level. To the south of Campus West there are a further four mobile masts at least 18 m above ground level.

There is also a police station (Fulford Road Police Station) about 450 m from the campus boundary transmitting TETRA frequencies at 400 MHz which are modulated using a suite of different frequencies including brain entrainment frequencies at 17.6 Hz. There is a lot going on within this area and all of it can be described as a 'cock-tail' effect of pulsed microwave radiation, raining down on all those individuals within its radiation umbrella.

The environs around York University represent possibly, the worst type of scenario in which to live and study if you are in any way, electro-sensitive. Nearly all the mobile phone masts are unusually high above ground level. The concept of "height equals might" in terms of signal propagation suggest that under different environmental conditions i.e. winter, summer, morning, noon or night, rain or shine, signals will remain strong and consistent within and beyond the campus boundaries.

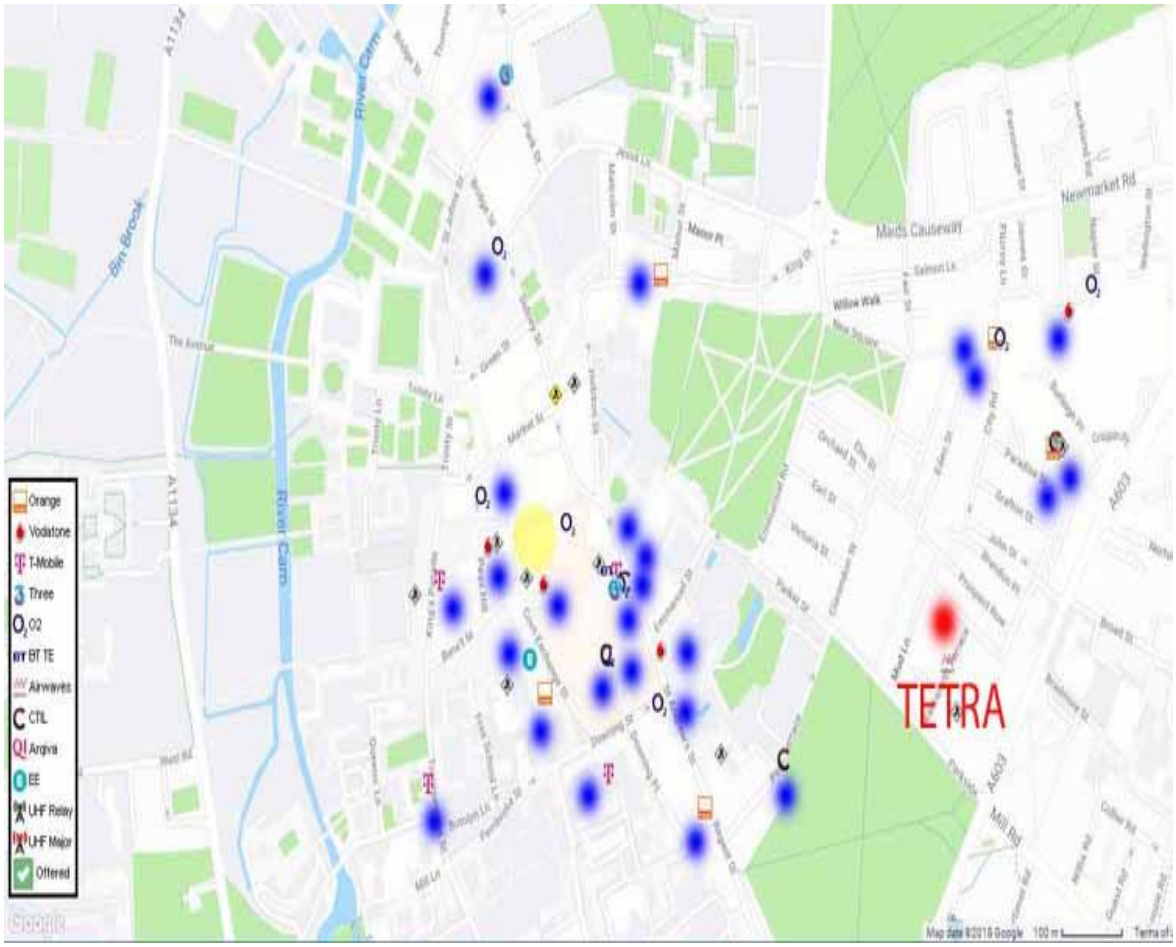


University of York

Siward's Water Tower, University of York

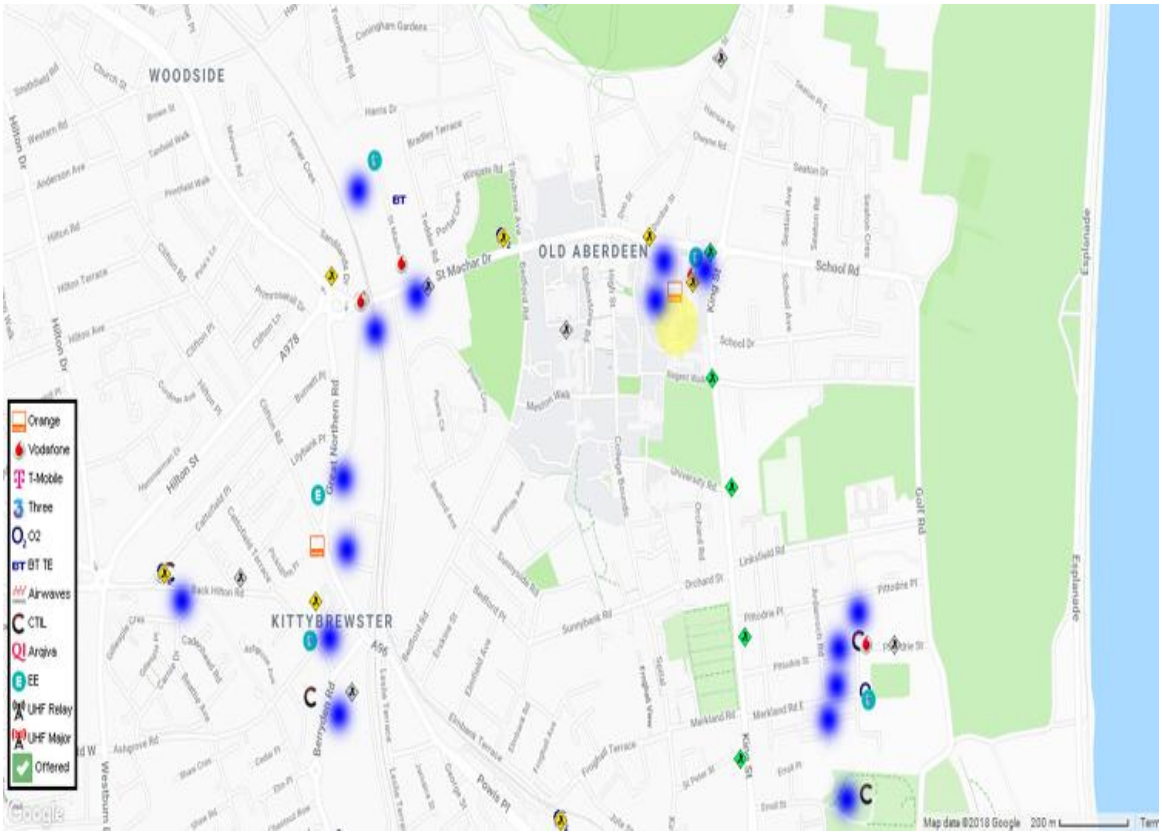
Universities of Cambridge

In this relatively small area of Cambridge, there are 23 (twenty three) mobile phone masts. Some of these masts are fairly low i.e. up to 5 m above ground level and others are as high as 30 m above ground. The topography of buildings and their differing signal absorbing, reflection and refraction characteristics make it difficult to predict areas of high signal intensity. I suspect there are plenty of 'radio blackspots' within the spires of Cambridge University campus grounds hence the mobile phone masts at 3.5 m and 5 m above ground level. I also suspect that signal intensities of pulsed microwave radiation will be fairly high in some areas and line of sight to your head. The only way to assess this situation is to visit Cambridge with a detection meter. Also note the police communications TETRA mast antennas adding to the mix of fairly high intensity microwave radiation.



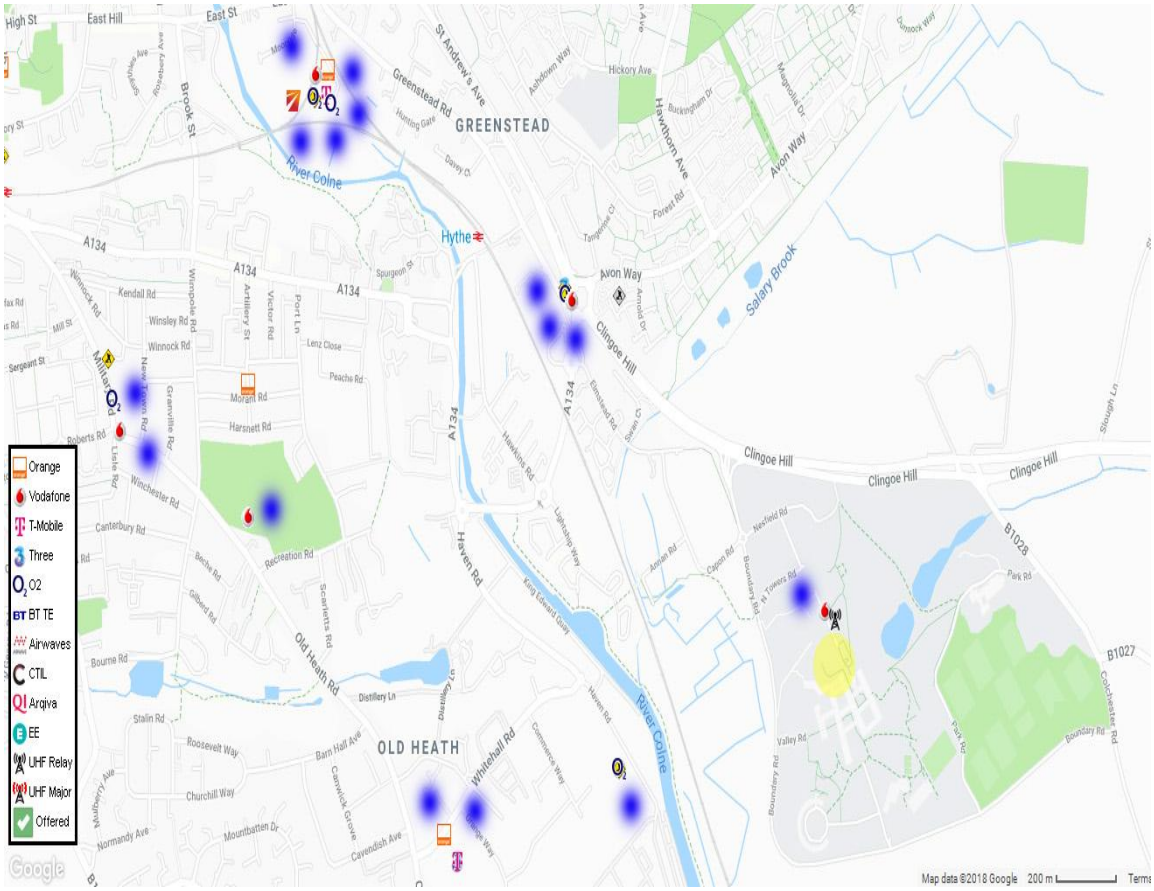
University of Dundee

There is one mobile phone mast on campus and another one sited on the campus boundary. Both of these mobile masts are installed fairly high up on a university building and Church West Tower. These antennas will transmit a relatively high signal of microwave radiation across all of the campus grounds and beyond.



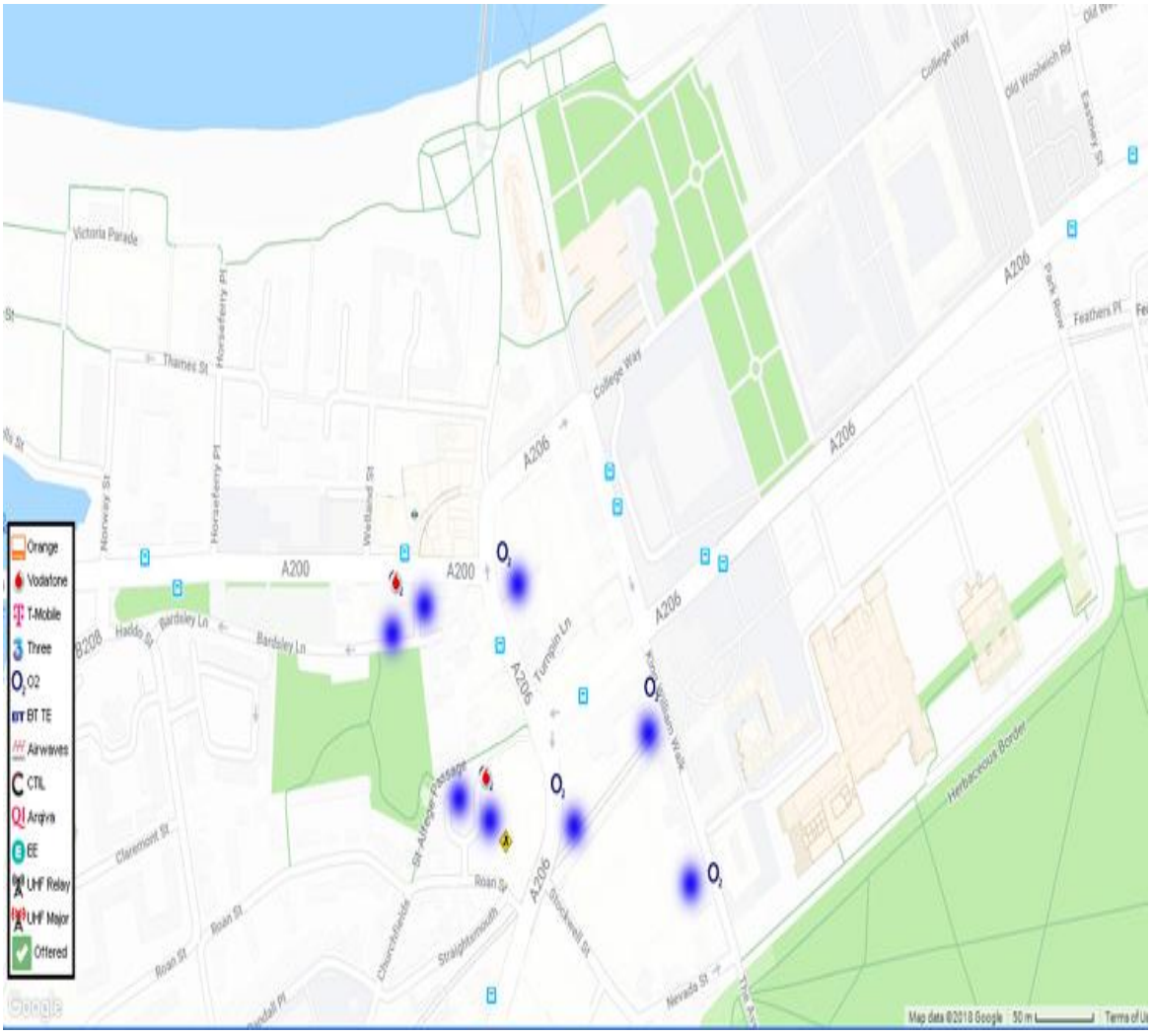
University of Essex

The University of Essex has one mobile phone mast on its campus grounds. The mobile phone mast (Vodaphone) is 40 m above ground level. At this height above ground, this single antenna will transmit a huge signal across all of the campus. This campus is also home to a VHF digital transmitter transmitting between 660 MHz – 710 MHz at a transmitter power of 10 watts. Once again, the signal strength from this TV transmitter will be very strong and add to the general levels of electrosmog on the campus grounds. There are also 23 other mobile phone masts within a 500 m radius of the campus boundary and at least two 'cluster' antenna installations to the north and north west of the campus boundary.



University of Greenwich

The University of Greenwich has no mobile phone masts on campus with two masts on the campus boundary. There are about 18 mobile phone masts within a 400 m radius of the campus boundary. The mobile phone company O2 has five (5) mobile phone masts within 100 m of the campus boundary – this is over-kill and I mean that in the literal sense. Those five O2 mobile phone masts could easily be reduced to one in order to reduce the general background levels of microwave radiation.



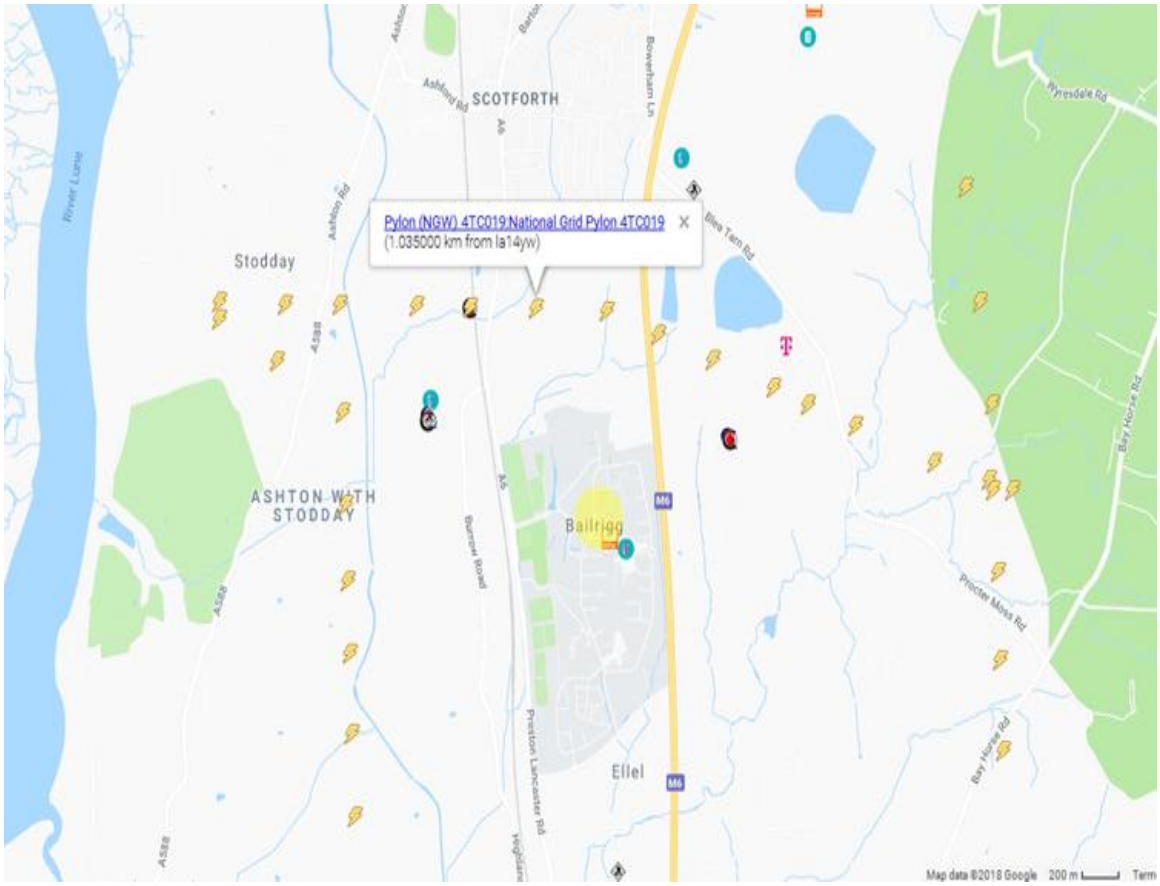
Liverpool John Moores University

There are no mobile phone masts on the City Campus of LJMU. There are at least 23 other mobile phone masts within a 200 m radius of the campus boundary. The placement of mobile phones around the City Campus is typical of many inner-city university campuses whereby the telecom companies site mobile phone masts sometimes within 75 m of each other. This mentality inevitably leads to a high levels of pulsed microwave radiation within this region.

University of Lancaster

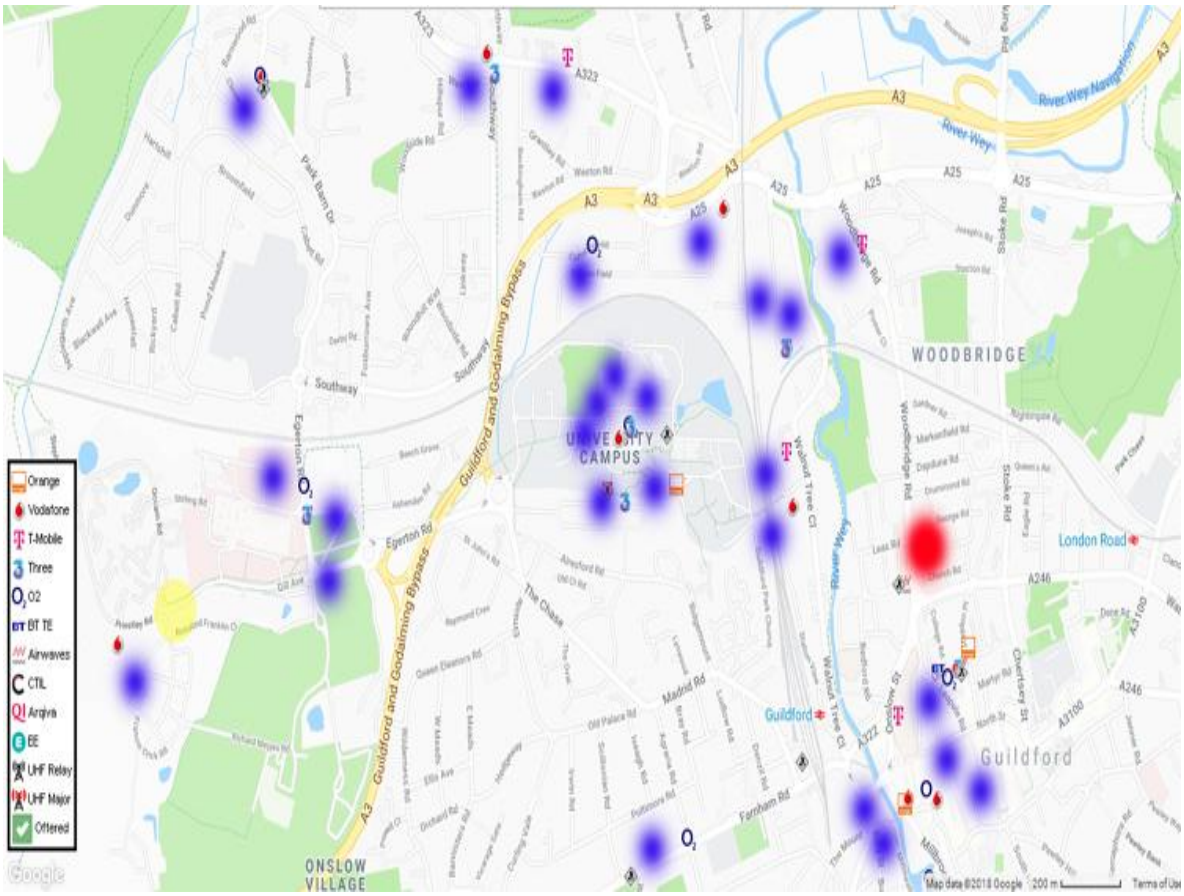
Lancaster University has three mobile phone masts on campus and a further 7 masts within a 400 m radius of the campus boundary. There is an Orange mobile phone mast not far from the campus boundary and at 46 m above ground level, these antennas will radiate a big signal across and within the campus. There is also potential for high ground currents or ELF (extremely low frequency) signals from the 'ring of steel' i.e. electricity pylons on all sides of the campus. I go into this phenomena in greater detail in a later chapter.

University of Lancaster's ring of steel electricity pylons

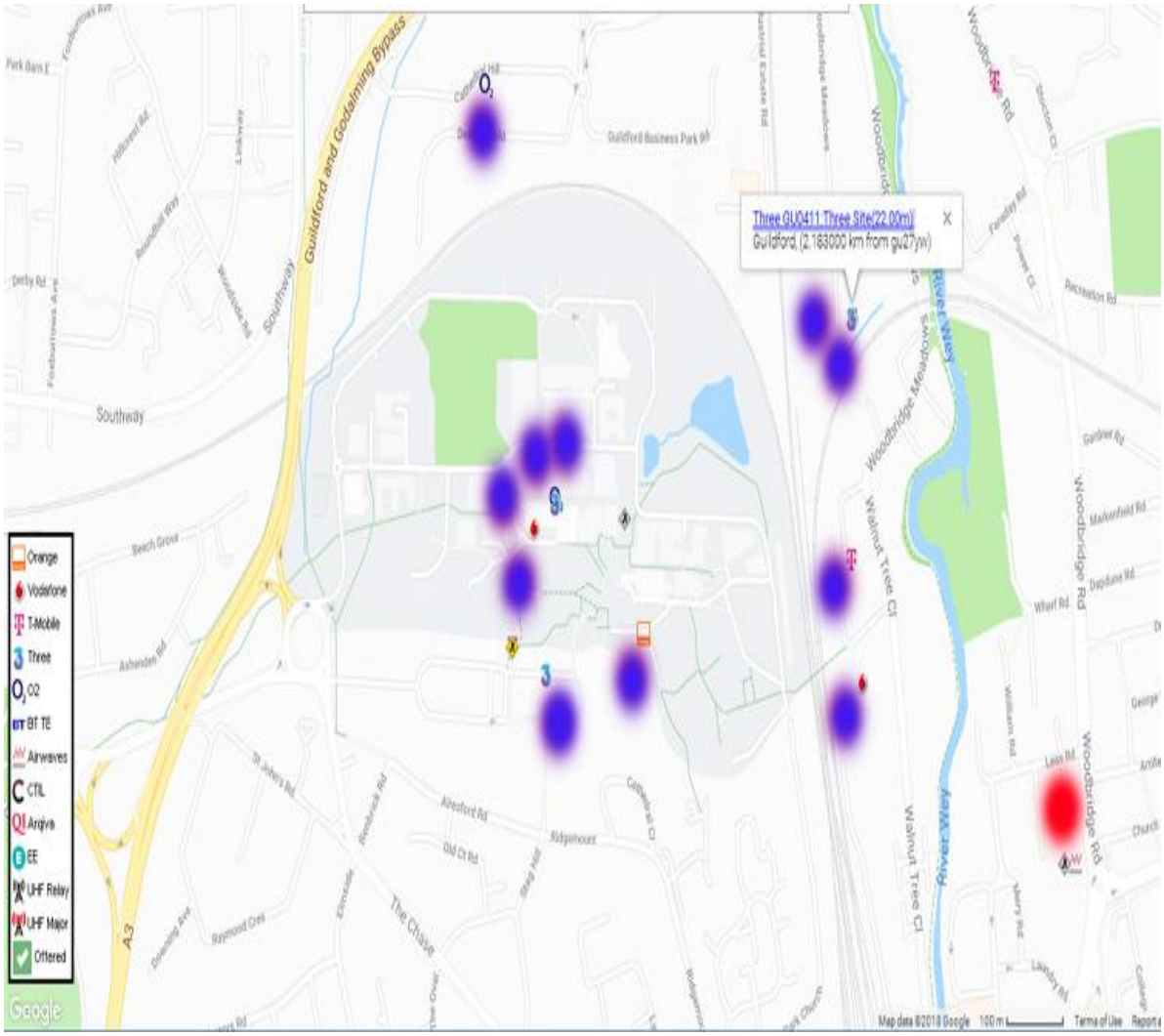


University of Surrey

There are 5 on-campus mobile phone masts with a further 5 masts within a 250m distance from the campus border. As with the majority of university campuses, exposure to microwave radiation will be very high. I've been here a few times professionally and the campus itself is vast with flat terrain. Line of sight transmission is evident and I wonder why the telecoms companies saturated this campus with so many mobile phone masts?

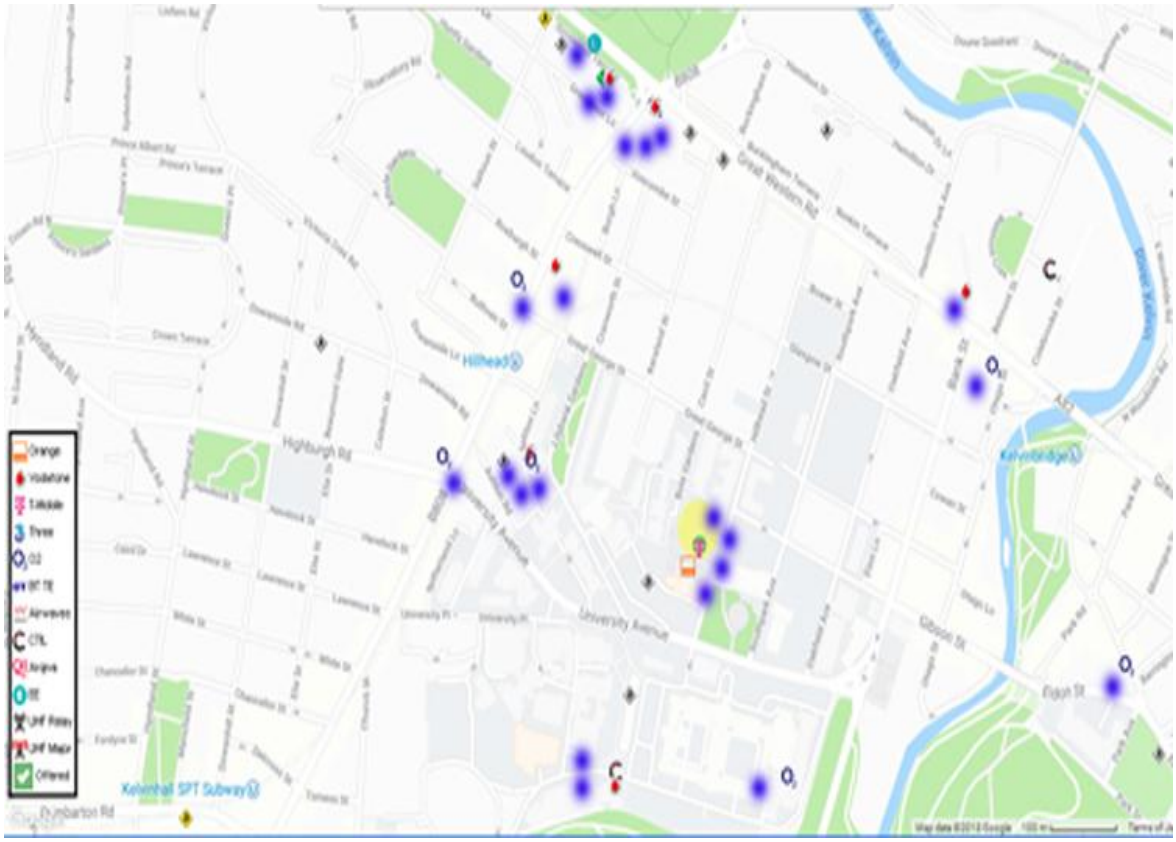


University of Surrey Campus boundary



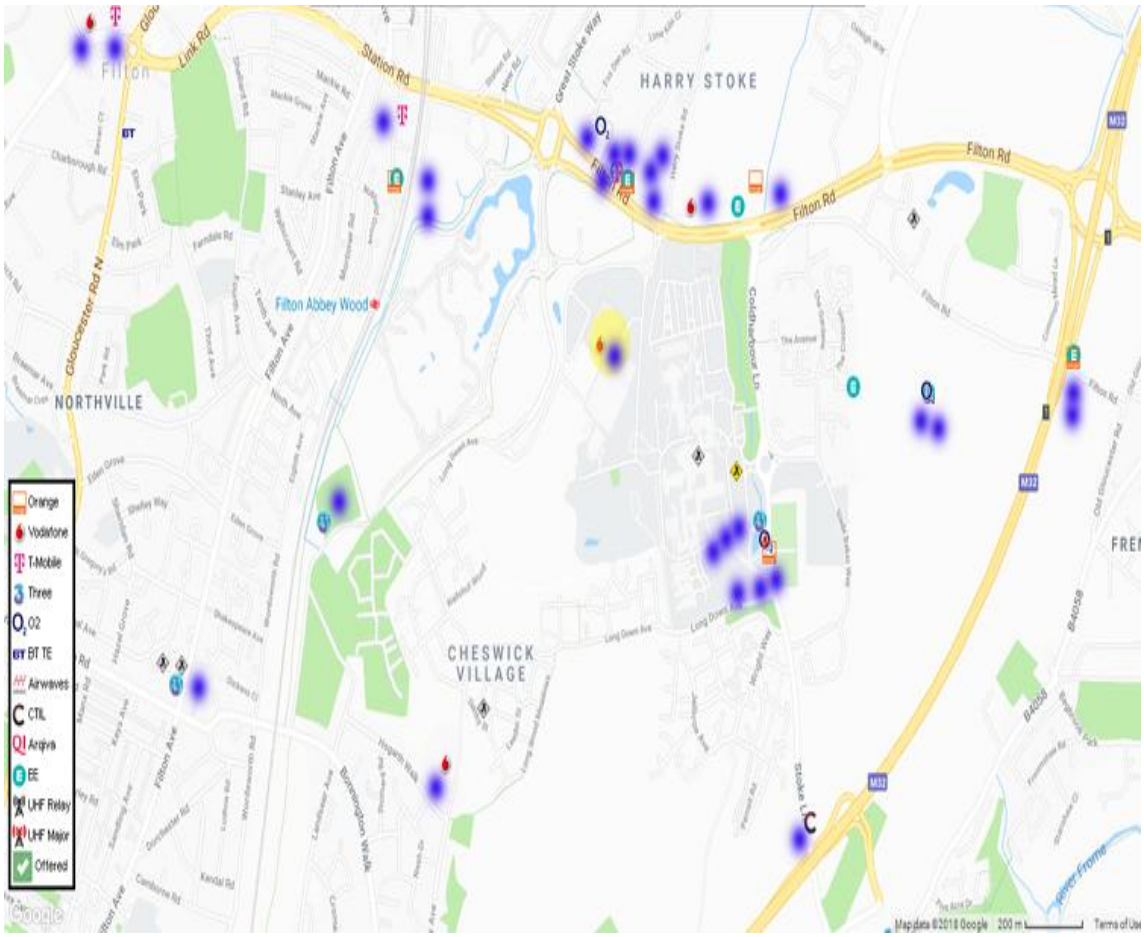
University of Glasgow

The University of Glasgow has 13 on-campus mobile phone masts with a further 8 within a distance of 200 m around the campus boundary. Clearly, with such a high number of mobile phone companies on campus, the background intensity of pulsed microwave radiation must be high. It is slightly lower off campus and if I was a student with EHS or simply electro-sensitive, I would be looking to live off-campus.

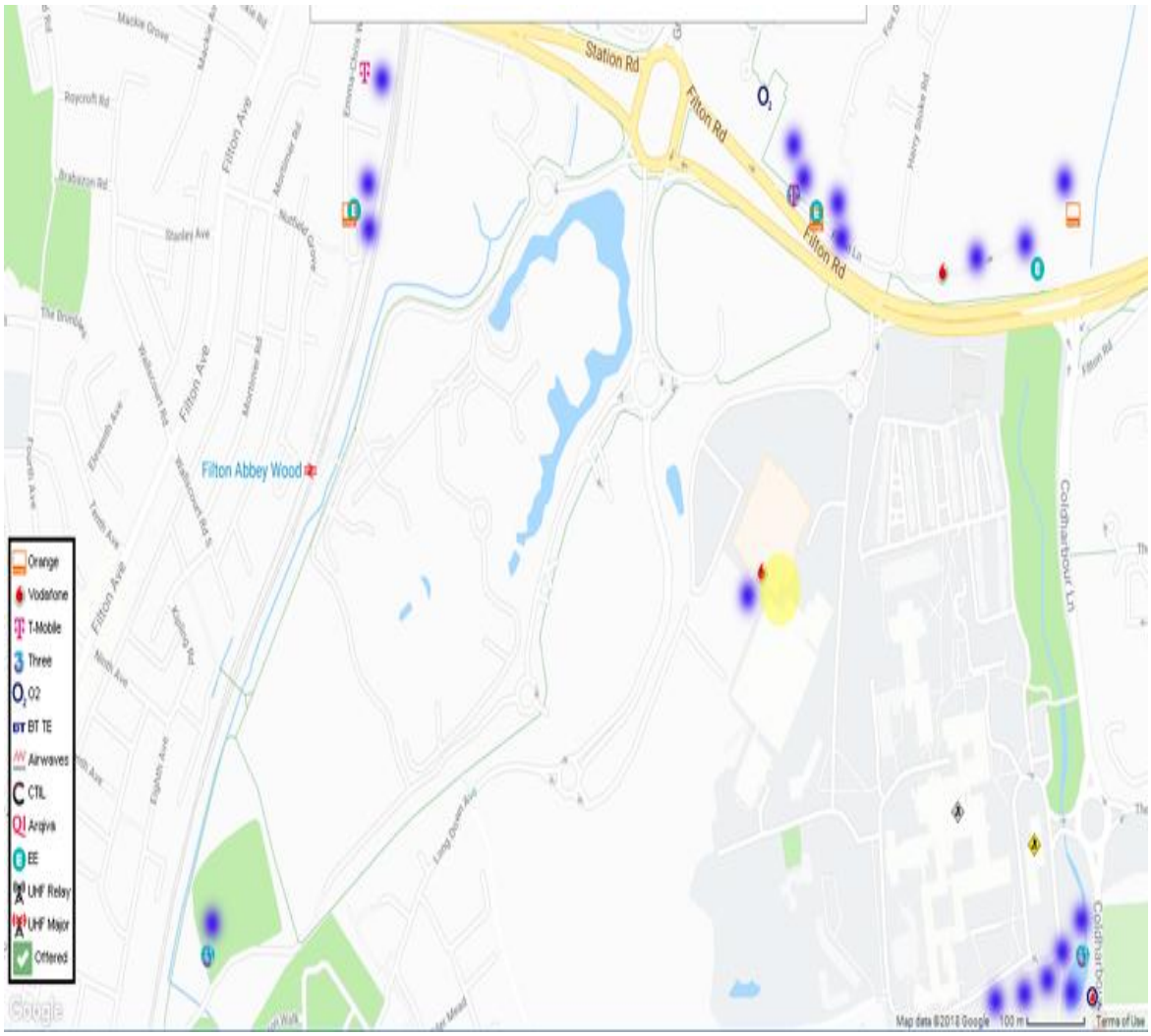


University of West England, Frenchay campus

The University of West England (Frenchay) campus has seven on-campus mobile phone company masts with a further 21 masts within a 200 m distance around the campus boundary. A hotspot and mess of mobile phone masts can be seen to the north and south of the campus boundary! The signal intensity must be very high and if you sleep, study and play within this part of town you will have no respite to these frequencies

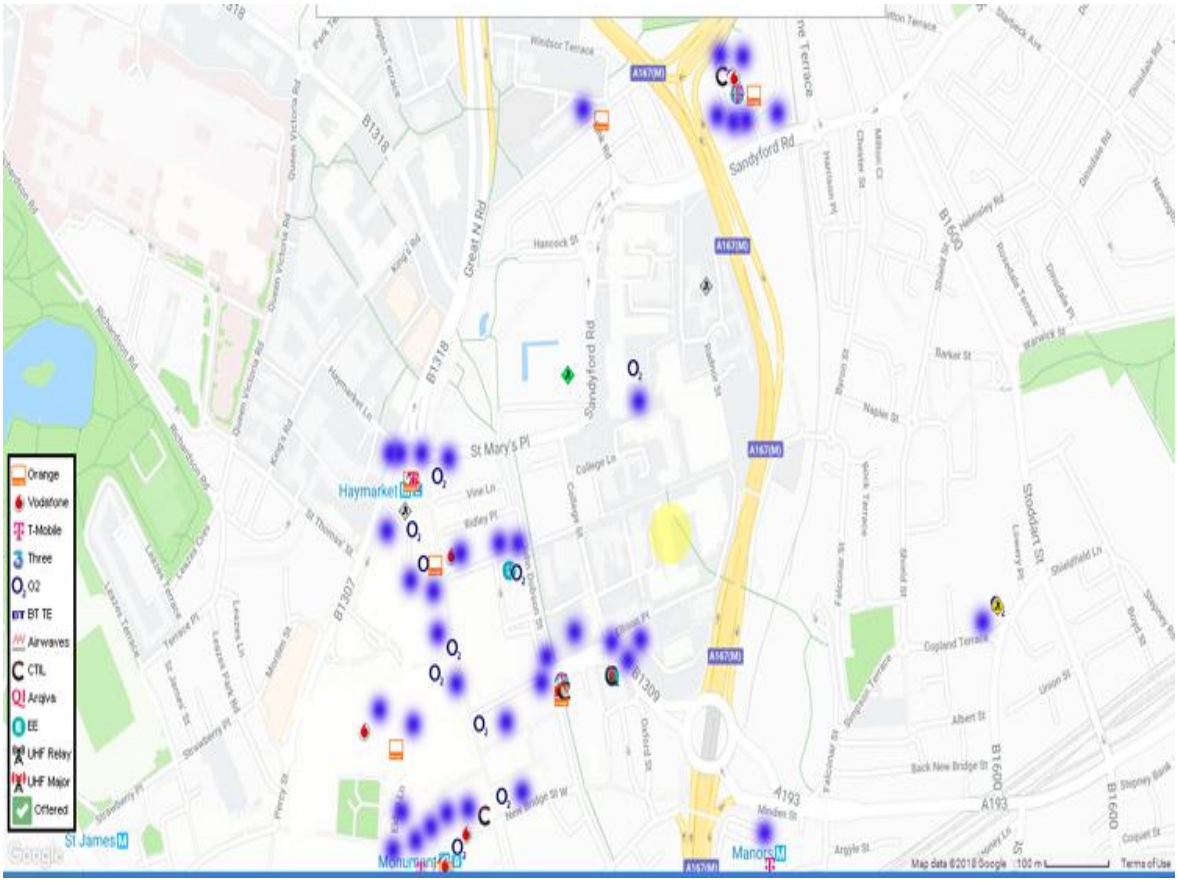


Expanded view of campus, University of West England



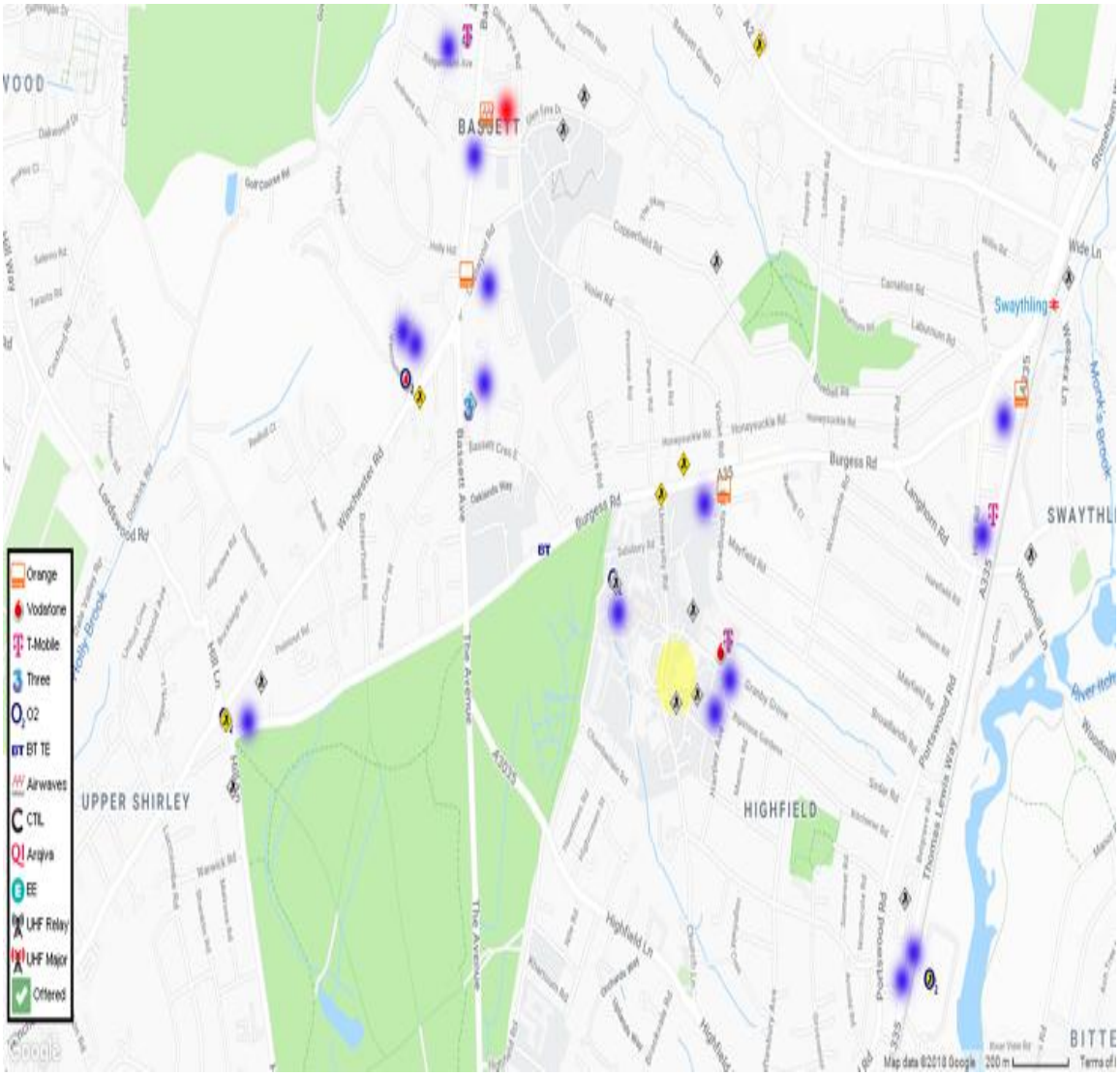
Northumbria University

The University of Northumbria has four on-campus mobile phone company masts with a further 28 masts within a 150 m radius of the campus boundary. The areas west and south west of the campus boundary is absolutely chock-full of mobile phone masts. The east of the campus is much better but you end up being on the wrong side of town.



University of Southampton

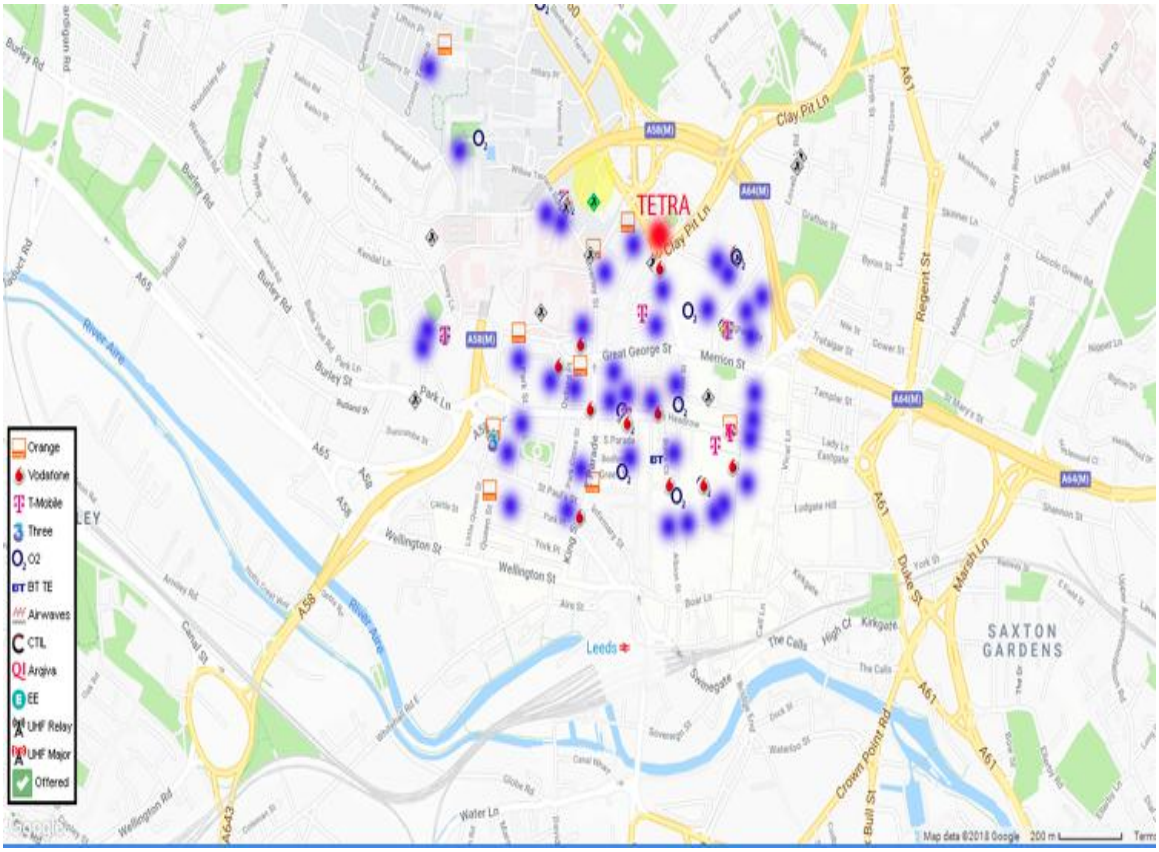
There are four on-campus mobile phone company masts with a further 11 masts within a 400 m radius of the campus boundary. A police TETRA antenna network is installed between 350 m – 400 m from the campus boundary. Expect very high levels of microwave radiation on all parts of campus and beyond.



Leeds Beckett University

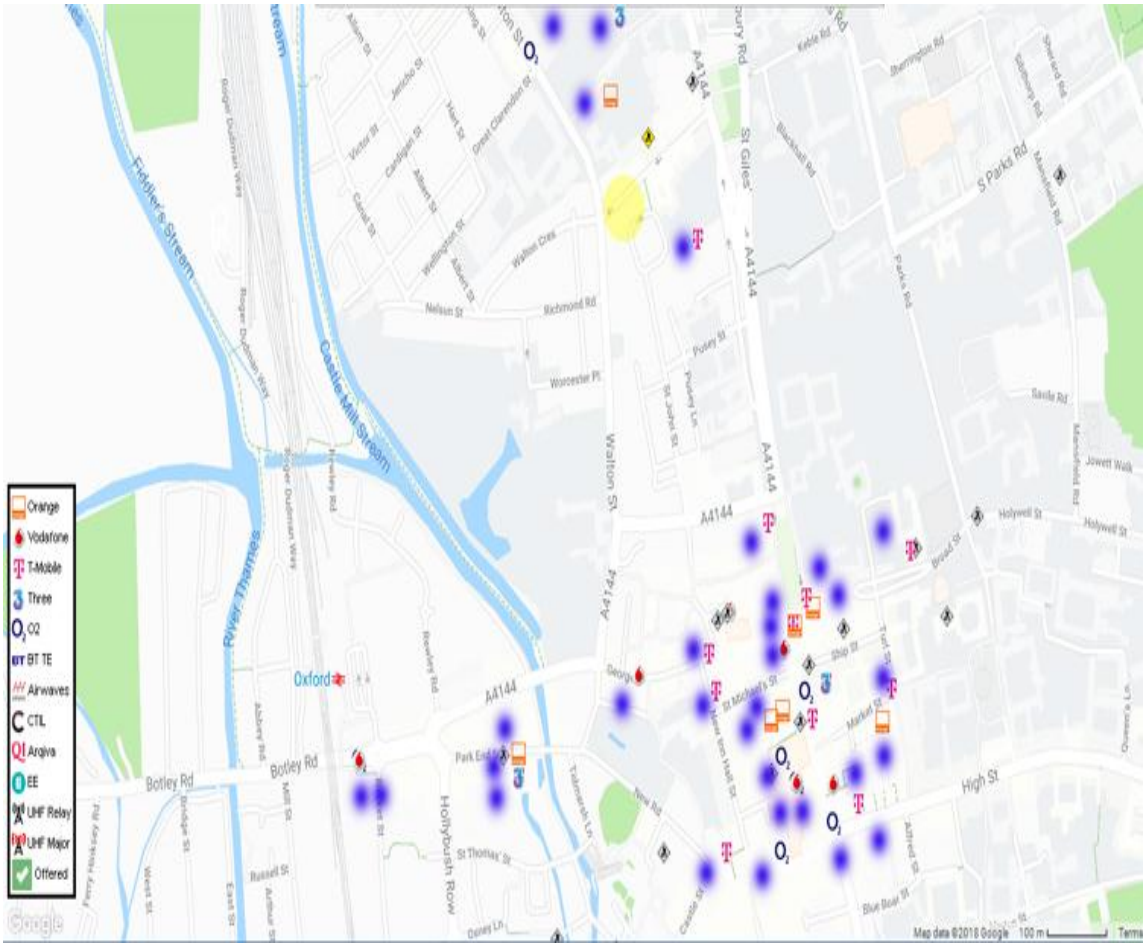
Leeds Beckett University has four on-campus mobile phone company masts with a further 32 (thirty two) within a 300 m radius of the campus boundary. There is also a police TETRA antenna network within 75 m of the campus boundary. This is probably one of the most densely populated mobile phone installations of all universities. The background level within the entire area must be very high. Note all mobile phone companies site their own masts within 30 m – 50 m of each other – another example of over-kill.

Even if you are not electro-sensitive, you may suffer some of the milder symptoms of microwave sickness such as difficulties sleeping, unable to focus and concentrate, mild headaches or tinnitus- ringing in the ears.



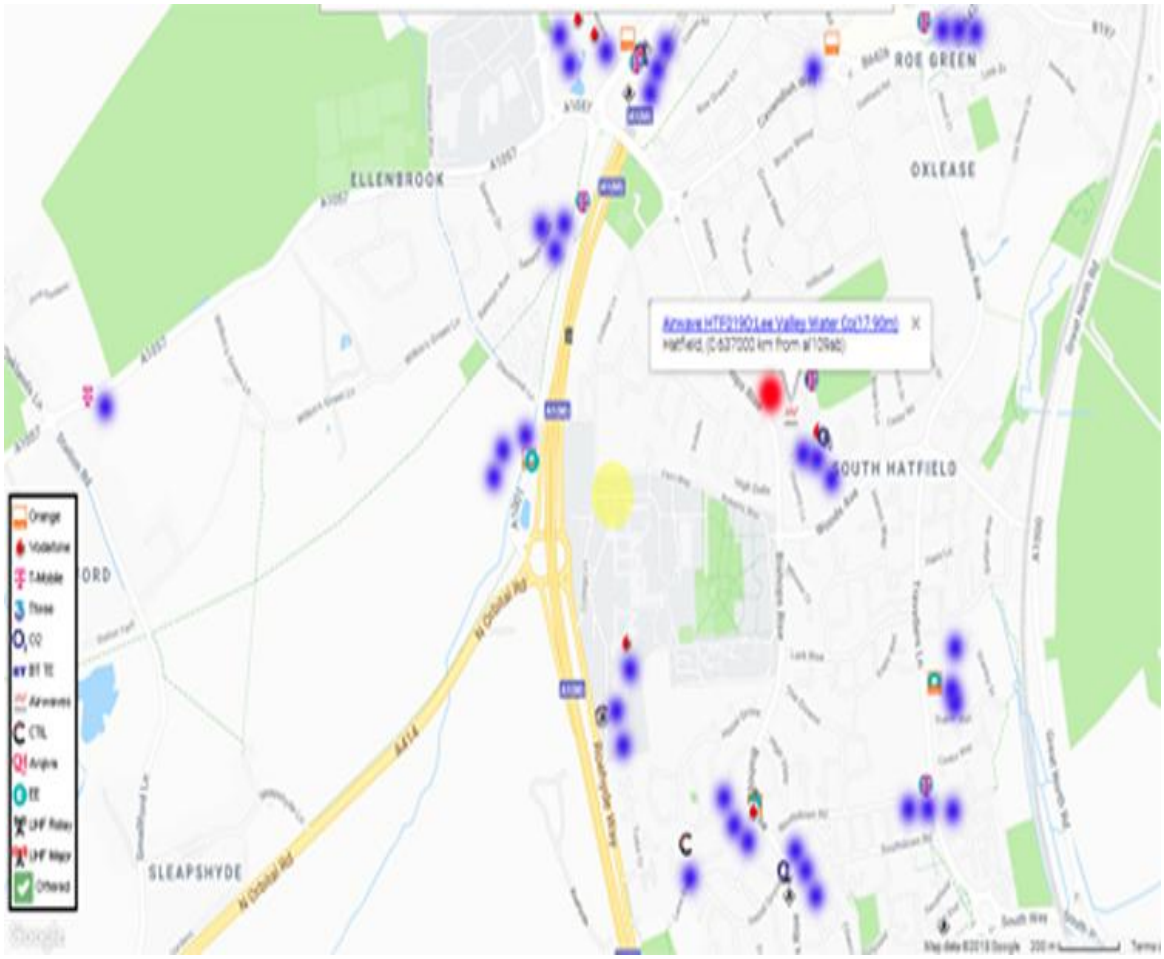
Oxford University

The University of Oxford has four on-campus mobile phone masts and approximately 24 masts within 400 m of the campus boundaries. Much of the telecoms hardware is situated towards the south of the campus. Look for sleeping quarters to the west of campus



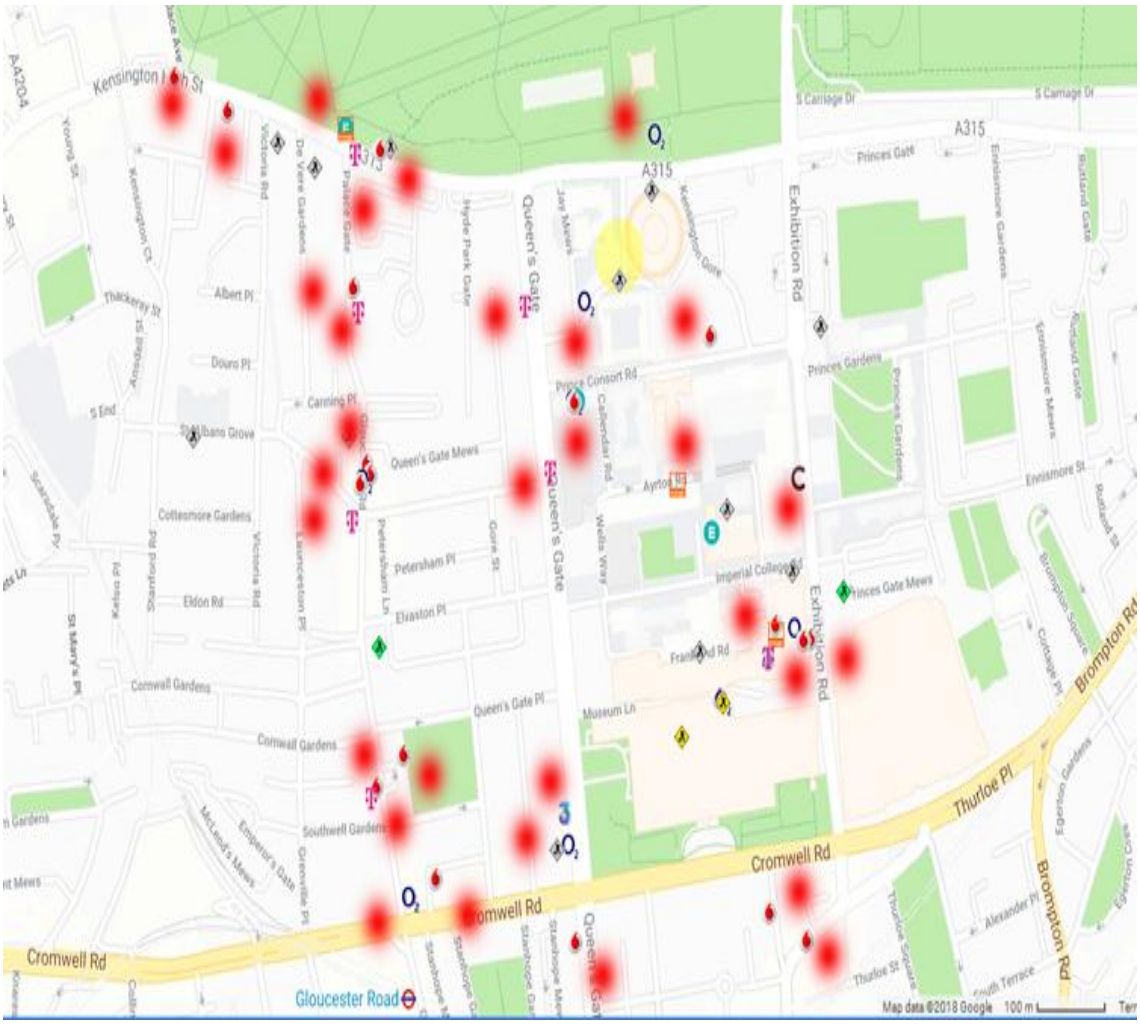
University of Hertfordshire

There are three on-campus mobile phone company masts with a further thirty two masts within a 400 m radius of the campus. A police TETRA antenna network is also situated about 60 m from the campus boundary. Expect very high levels of electrosmog from all directions around the campus boundary apart from the west.



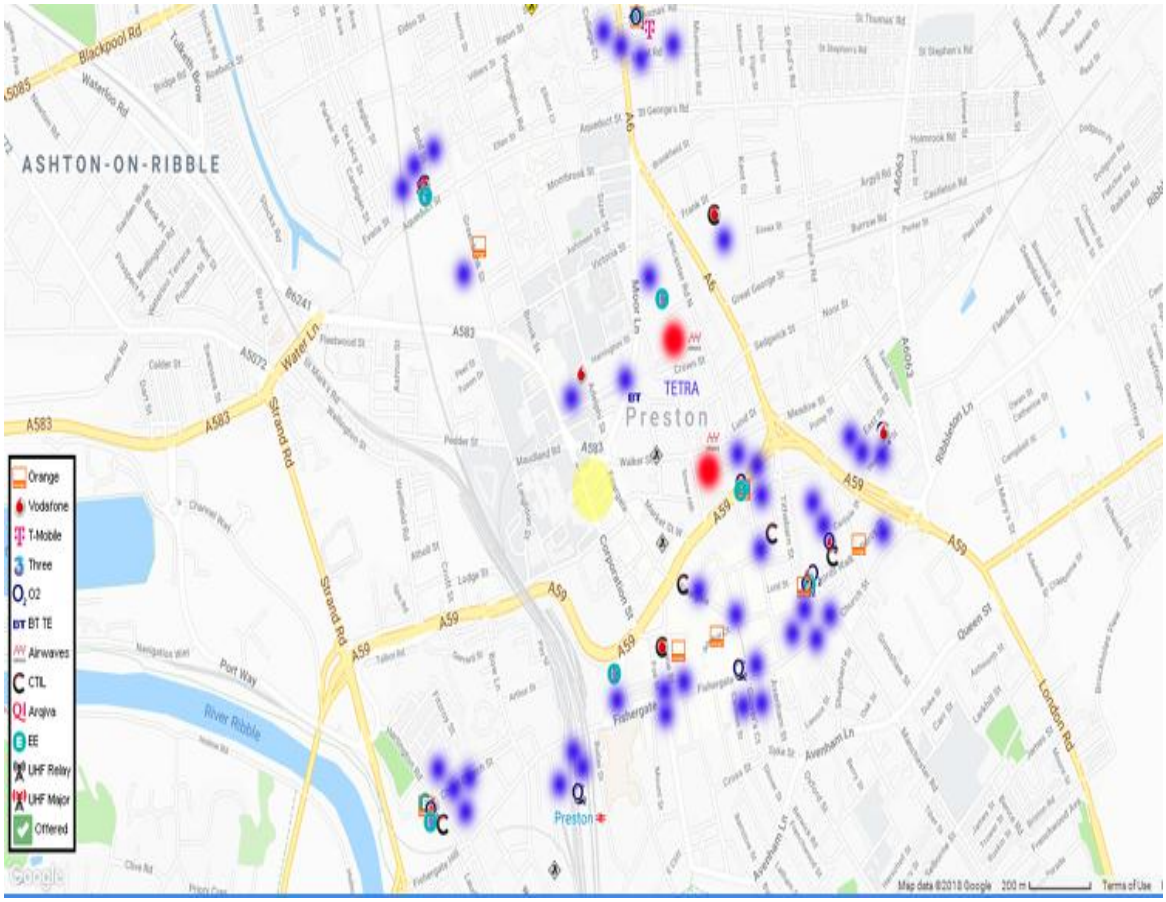
Imperial College

Imperial College is set within the borough of Knightsbridge and next to the Science Museum. It is smack in the middle of 'touristy' London and as illustrated by the map below has a preponderance of mobile phone masts all around it. Quite a few of these mobile phone masts are sited on top of buildings high up. The electrosmog level will be high for most areas around the main campus but due to the complex 'street-canyon' type environment, there will be blackspots where reception is low. Perhaps, that is part of the explanation for why there are so many mobile phone masts in this area.



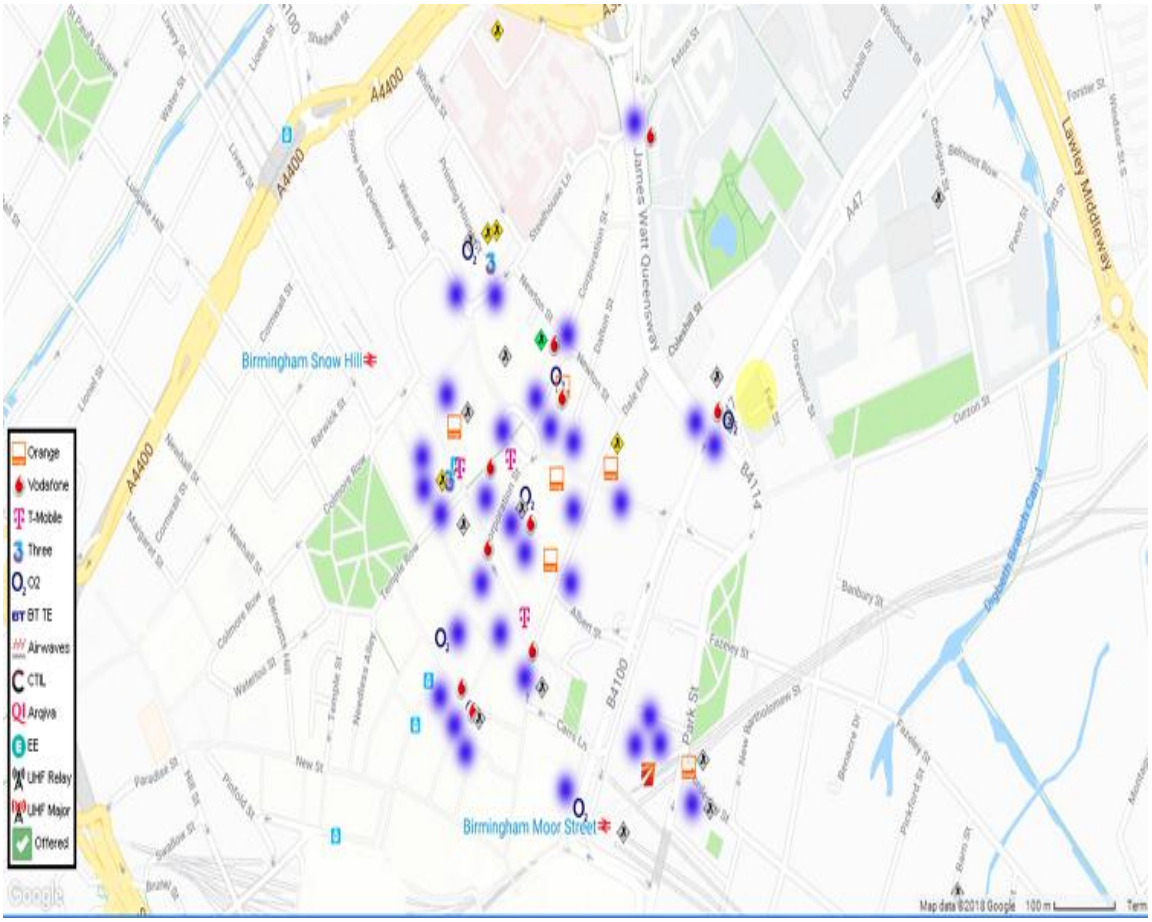
University of Central Lancashire

The University of Lancashire has four on-campus mobile phone company masts with a further 37 (thirty seven) within a 300 m radius of the campus boundary. There are also two police TETRA antenna networks within 100 m of the campus boundary. That is a lot of telecoms infrastructure and antenna hardware in a relatively confined space. Highest signal intensities of both pulsed microwave radiation and ELFs (extremely low frequencies from TETRA) are to the east and south of the campus boundary. If you suffer from EHS, think carefully before you sign up or even better, spend some time within and around the campus and see how you feel.



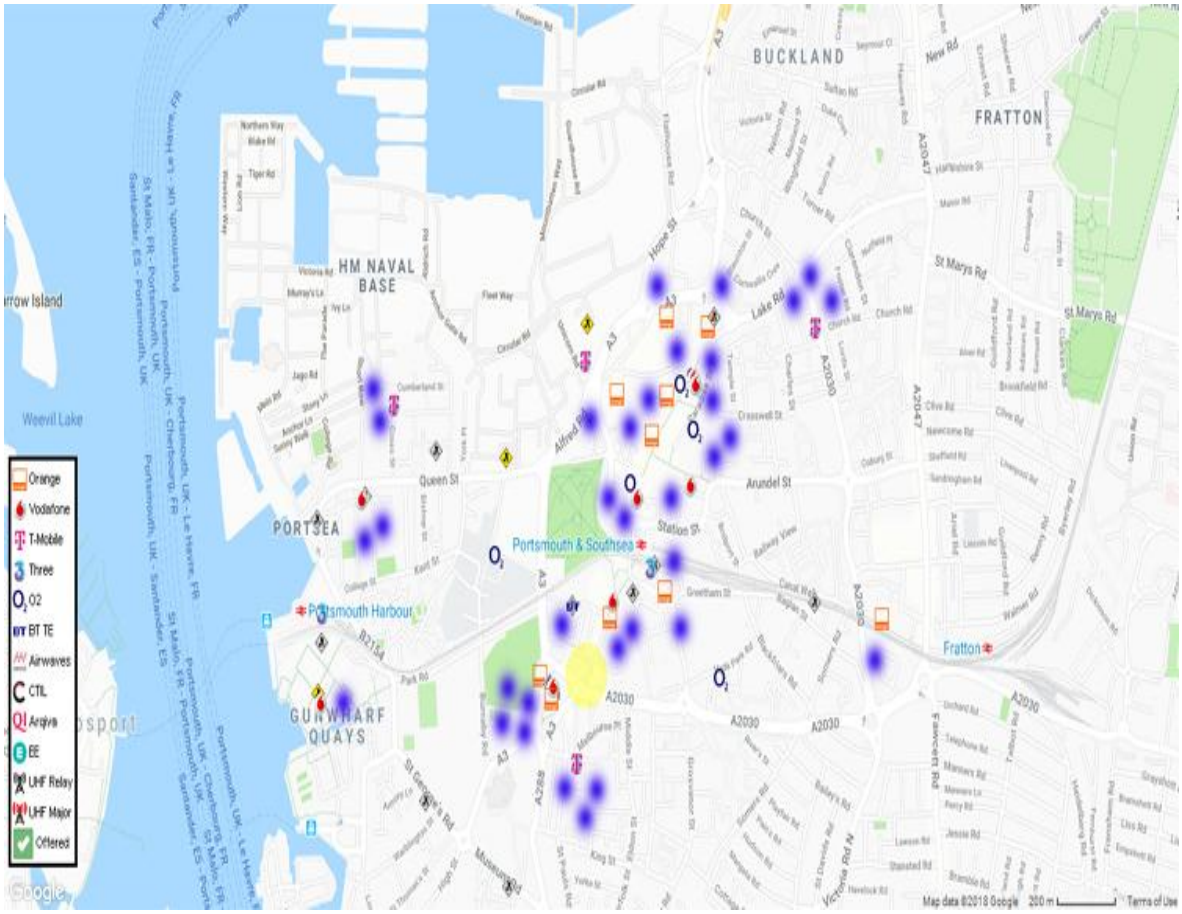
Birmingham City Centre University

Birmingham City Centre University has two on-campus mobile phone masts with a further 28 within a radius of 250 m of the campus boundary. The most heavily populated areas for mobile phone infrastructure is to the south of campus. This is typical of many inner-city mobile phone landscapes'. Ambient levels of pulsed microwave radiation will be high. Finding living accommodation might be difficult.



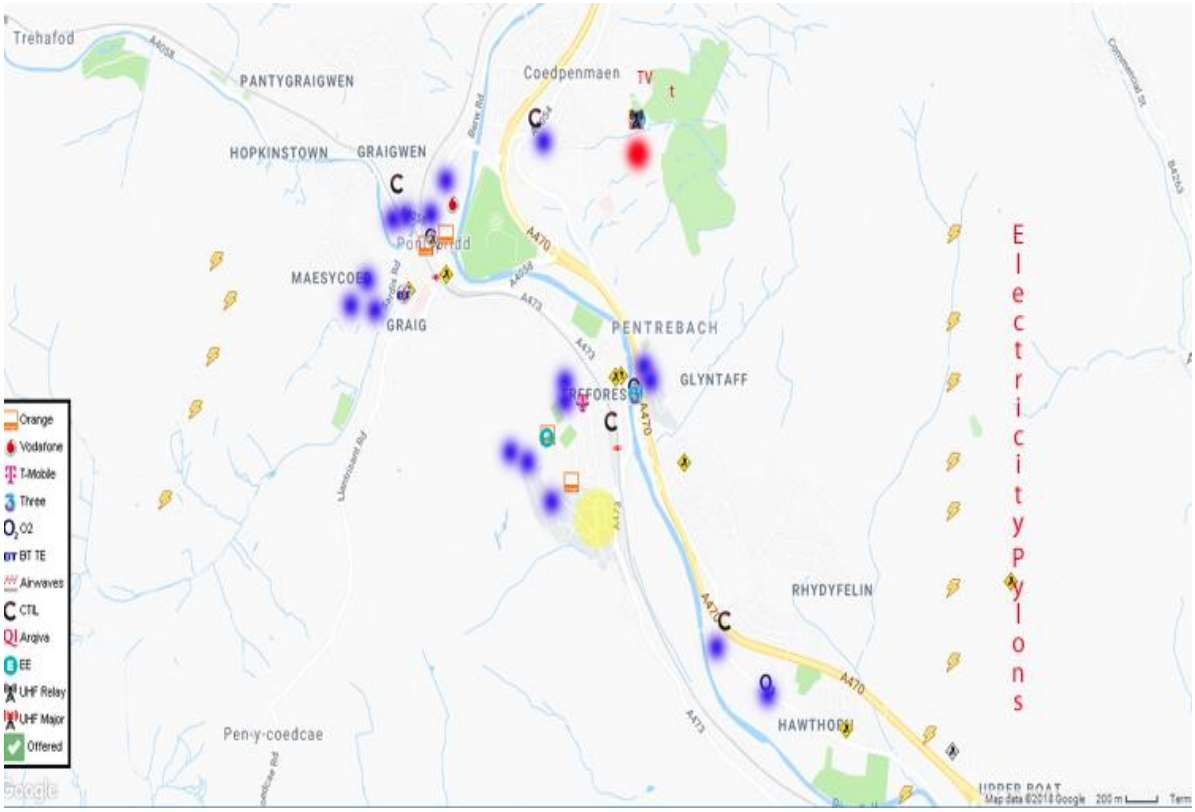
University of Portsmouth

The University of Portsmouth has 10 on-campus mobile phone company masts with a further 26 mobile phone masts within a 400 m radius of the campus boundary. Several of these masts are sited 30 m or more above ground level i.e. they emit very strong signals line of sight to the whole of the campus and beyond. Expect high levels of electrosmog within and around the campus boundary. Look for accommodation to the east of the campus and at least 700 m from the lone Orange mobile phone mast.



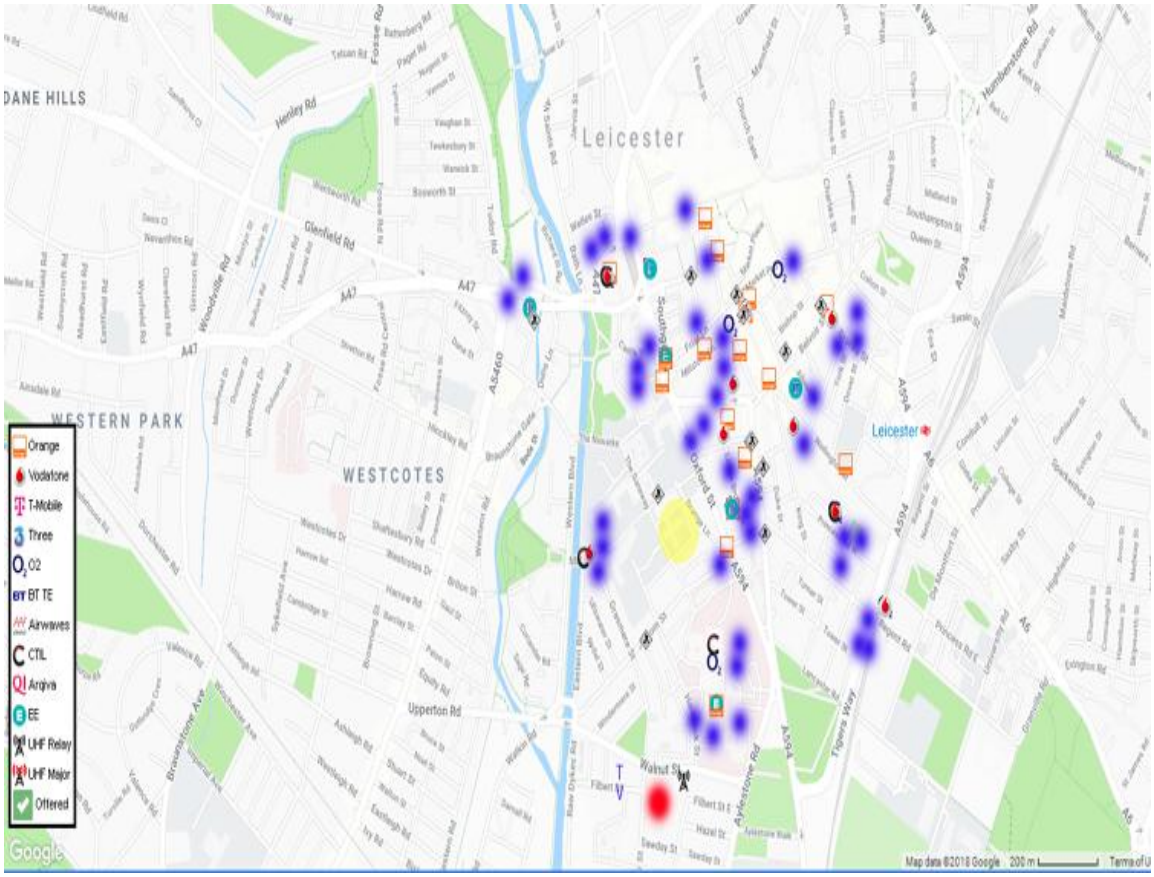
University of South Wales

The University of South Wales has no mobile phone masts on campus with nine masts within 100 m of the campus. In total there are seventeen mobile phone masts within a 400 m radius of the campus boundary. To the east of the campus about 150 m away is a line of electricity pylons. There is potential for either ground currents of dirty electricity or EMFs (extremely low frequency) signals at the campus and its surrounding areas. Finally, there is a digital TV transmitter about 600 m to the north of the campus. This transmitter emits frequencies around 700 MHz and because of its height emits a very strong, digitally-encoded TV signal across a wide geographical area. All of these sources equate to high levels of electrosmog. Look for sleeping accommodation south west of the campus.



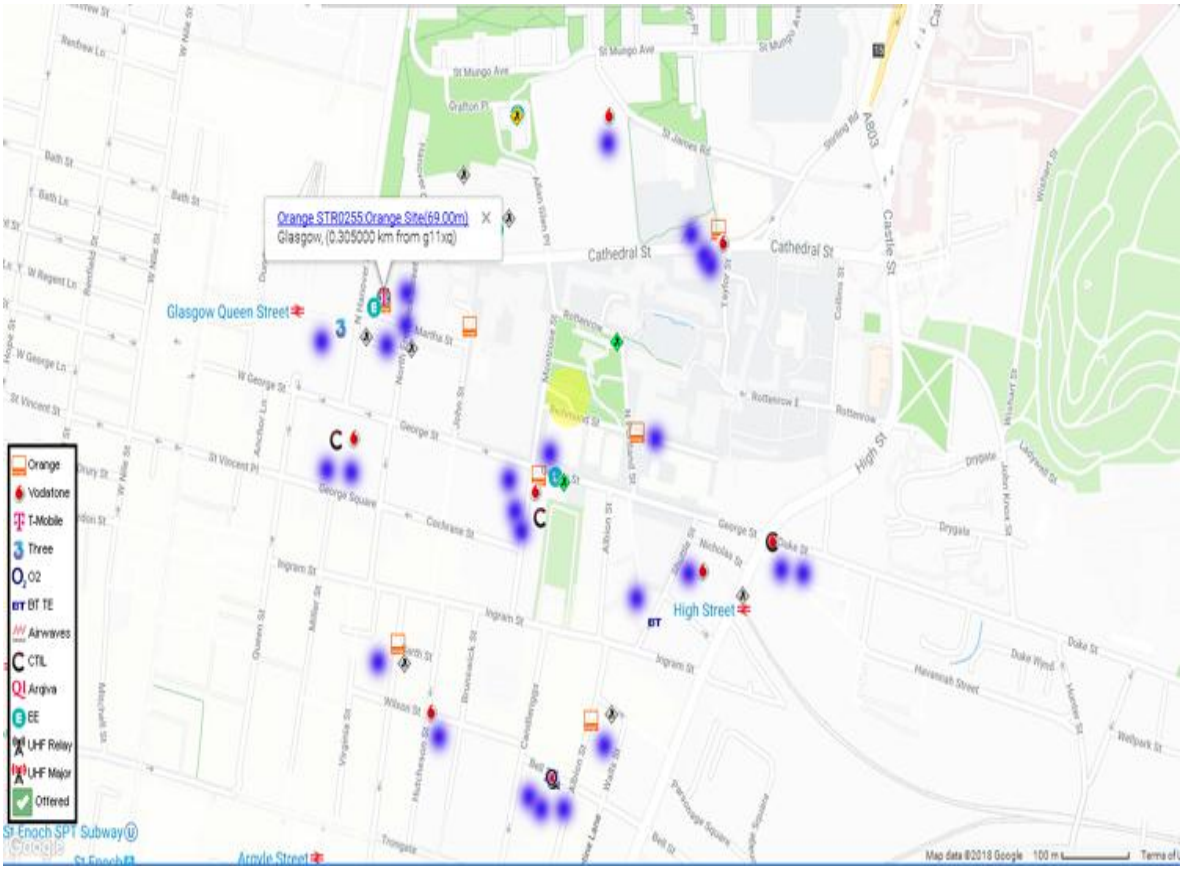
De Montford University

De Montford University has six mobile phone company masts on-campus and 35 (thirty five) other mobile phone masts within a 400 m radius of the campus boundary. Much of this hardware lies to the east and north of the campus boundary. There is also a digital TV transmitter about 500 m from the campus boundary. To reduce exposure to the mobile phone frequencies, seek living accommodation to the west of campus and preferably, at least 700 m from any mobile phone mast.



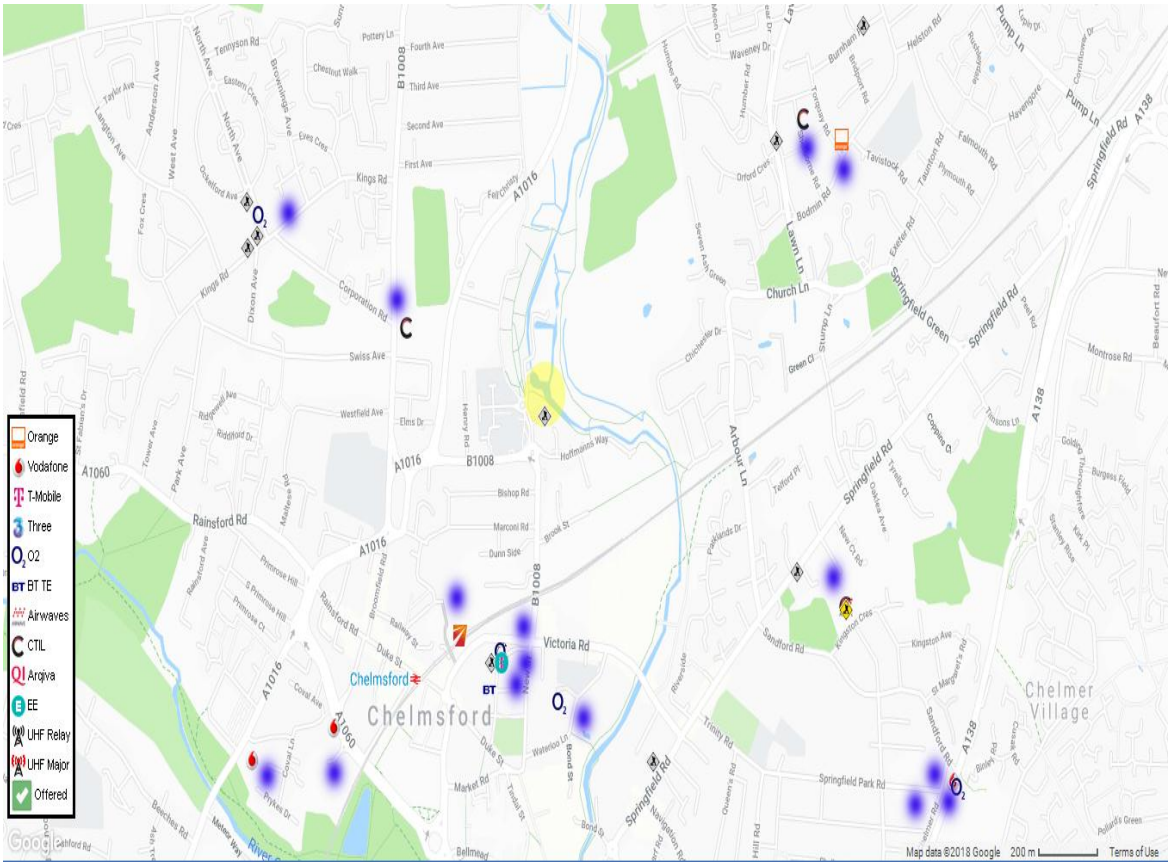
University of Strathclyde

The University of Strathclyde has four on-campus mobile phone company masts with a further twenty masts within a 400 m radius of the campus boundary. Significantly, some of these masts are installed almost 70 m above ground level with several other masts at 30 m high. Height is might in the world of the telecommunication industries and the background level of microwave EMFs will be very high throughout and beyond the campus borders.



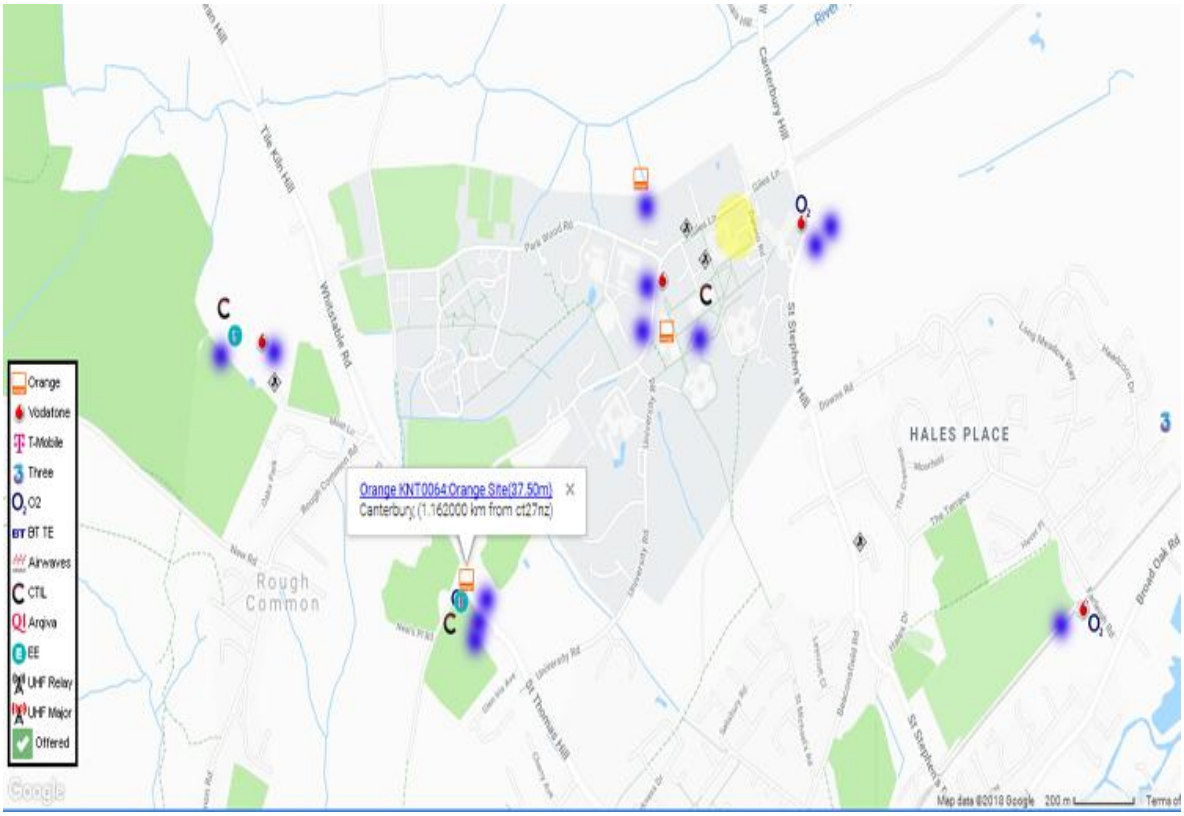
Anglia Ruskin University, Chelmsford campus

The Chelmsford campus of Anglia Ruskin University has zero mobile phone masts on-campus and fifteen masts within 400 m of the campus boundary. Potentially, this university has the lowest exposures of universities surveyed thus far. If the subject area offered by this university matched what you are looking for, go for it. If I had to do my time all over again and they offered Environmental Sciences, this would be my first choice university for study and accommodation.



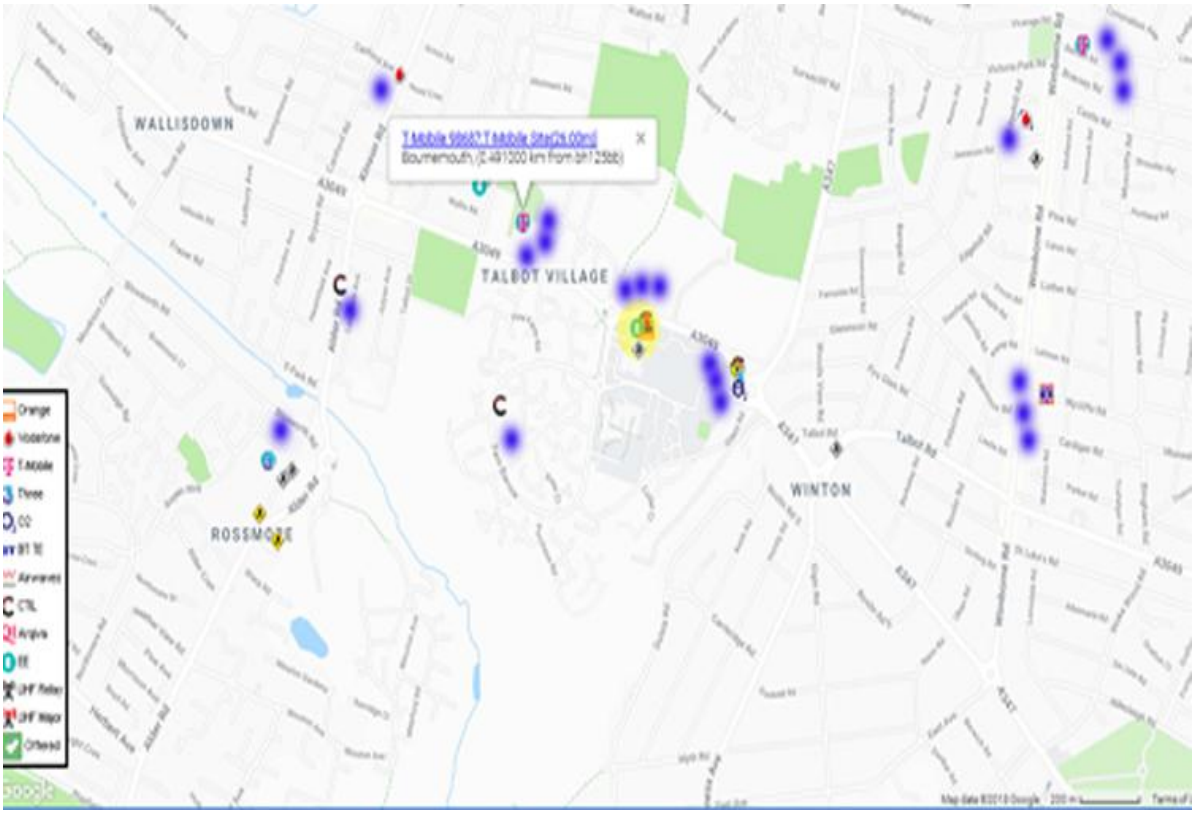
University of Kent

The University of Kent has four on-campus mobile phone company masts with an additional eight masts within 100 m of the campus boundary. One reason for the low deployment of mobile phone masts around the campus is that one mast is shred between 3 mobile phone companies. This particular mast is installed 38 m above ground level. From what I can see of the topography of this area, line of sight transmission from these masts into its immediate environs suggest that signal intensity within and around university grounds will be high to very high.



University of Bournemouth

The University of Bournemouth has six mobile phone masts on-campus with an additional fourteen masts within 400 m radius of the campus boundary. The low deployment of mobile phone masts around the campus can in part be explained by the fact that one of the masts is installed on top of a water tower, 38 m above ground level. At high vantage points such as this, one mast can be shared between three different mobile phone companies to deliver high signal levels of pulsed microwave radiation within and beyond the campus boundary.



The conspiracy of silence between the three monkey tricksters have very important safety implications for society. There are few individuals who question the safety of anything related to their digital gadgets and toys. If the truth be told, the majority of individuals have (a) no idea that microwave radiation is used in their digital gadgets and (b) there are controversies behind its biological safety and (c) we now have evidence that exposure to microwave radiation causes cancer! These individuals are not stupid, they are simply immune to anything because they are encased within a *conspiracy of silence*. They have no idea that exposure to microwave radiation causes a slew of adverse biological effects including cancer. Very few parents understand the EMF environments of their own homes, let alone schools and universities are deeply and biologically damaging. They simply live their lives, blissfully unaware of what has and is gone within the 'Alice in Wonderland' world of the three monkey tricksters.

Governments and industry already know that once we understand the dangers from exposure to microwave radiation, their game is up and their visions of a man-machine cyborg-A.I. reality will disappear quicker than a snowball in hell. Besides all the so-called science and professional professors singing the tunes of the highest bidders, the machinations of the three trickster monkeys will wake up billions of people around the world because these people will need to re-think the nature of their world reality and how things really work.

Hardly anyone would dare think that bodies such as the World Health Organisation, the ICNIRP, the FCC, other standards-settings bodies, politicians, governments, health regulators, the telecommunication industries, telecom companies, mainstream media, academics, professors, research scientists, universities, other research bodies, scientific journal editors and their editorial board operate to a script rather than a reality and these actors do not have society's best interests at heart. Few people understand the true scale of deceit and deception that permeate the single issue of modern telecommunication networks

The issue of course is the conspiracy of silence which provides a scientifically raised drawbridge that lays waste to the dynamics of discussion, debate and discourse. What we have now is the opposite to that which is urgently required. The ICNIRP effectively drew up the scientific discussion drawbridge many years ago in 1992 when they stated that radiofrequency radiation from 100 kHz to 300 GHz are non-ionising, nothing to worry about and move along please. What is staggering to me is that in the face of all the evidence of the past 30 years that exposure to microwave radiation is carcinogenic, that Science itself has allowed them to carry on as if nothing has or is happening.

Primary and secondary schools now use Wi-Fi, tablets, computers and smart-phones in the preparation, delivery and assimilation of knowledge for every second of their school attendance. I strongly argue that adverse changes in mental, psychological and physical behaviours has an association with the use of products that use microwave radiation. School refusers are the easiest group of youngsters that garner our attention. Other lesser-known symptoms include depression, stress and anxiety, so-called ADHD, ASD and PDA. Young lives are being blighted and true to form, the educational psychologists and educational/social experts cannot explain the mushrooming of these behaviours. Bob Becker, hit it right on the nose when he explained that because our bodies are bio-electrical in nature, our central nervous system can get swamped and/or entrained by sources of strong and weak anthropogenic radiofrequency radiation.

The data I have just discussed show that because of the legacy and conspiracy of silence between the three monkey tricksters, university administrators simply haggle over money not biological nor mental well-being safety when they engage with the black suits of the telecom companies. I understand the importance of a well-run modern telecommunications network and its use within companies, schools and universities. What is criminal is a silence so deafening that those who should know better, do not. In other words, I seriously question the competence of many academic institutions, their leaders and the councils who gave all these educational institutions a green light to simply go for it.

The three trickster conspiracy of silence and student suicides

University chancellor and administrators:

Since the rollout of mobile phone telephony both on and off university campuses and student halls of residences, there have been several student 'cluster' suicide events in British Universities. No-one in these academic institutions or the bodies that over-see universities are asking looking in the obvious places and asking the right questions. Instead, university chancellors blame the students themselves for having mental health problems that they did not declare prior to starting their courses. What is very clear to me is the telecom companies ruthlessly target university campuses, halls of residence and the students themselves. That is very clear from the number of mobile phone masts on-campus and within 400 m of the campus boundary and off-site student halls of residence. Clearly, university chancellors and their administrators must take responsibility for anything that happens on their campuses once they invite the telecom companies' access to their grounds. They are after all, positing themselves as halls of learning for young minds. Something needs to happen to snap them out of their somnambulistic slumber in thinking everything is fine and nothing to worry about. Bristol University is a perfect example of this zombie-like sleepwalk between telecom companies and universities. They have a department whose only function is to define the environmental characteristics and propagation properties of 5G frequencies, yet the safety of the very thing they study is ignored, dismissed and of no consequence? How is it possible for example to study a nuclear explosion and for no-one in your team to ask basic safety questions? That is the overall position of research in some universities who simply sell their research talents to the highest bidders.

Government and telecommunications industry:

It is easy to understand government and the telecommunication industry interests by seeing what they do rather than listening to what they say. Telecom companies *willy-nilly* install mobile phone masts *where-ever* and *whenever* they want. The telecom companies simply see themselves in competition with other telecom companies and they are only interested in getting the biggest advantage to their company by siting their mobile phone masts in the honey spots of high vantage point, next door to a large captive audience of potential phone users. Consumer safety is not within their consciousness remit. They are absolved of all guilt because the ICNIRP and government health regulators say, *nothing to see here, move along please.*

ICNIRP/government health regulators:

The ‘cock-tail’ effect on a student population of several ELF and SHF frequencies of both high and low intensity and its effects on our biology and mental well-being are not fully understood. In order to explain what I mean by the term, cock-tail effect, I use food additives as an example. Food additives are added to foods to fulfil functions such as taste, texture, appearance and to preserve shelf life etc. Each additive is individually assessed for a variety of different biological responses i.e. cytotoxicity, genotoxicity, mutagenicity, and hepatotoxicity etc. If we look at the label of an industrial, heavily processed food item such as baked beans, it may contain 37 additives, all of which are individually authorised for use. We have toxicity data on individual additives but no idea what happens when we actually consume several different additives at the same time. The cock-tail effect suggests that toxicological body responses for some compounds might be much stronger and enhanced relative to what is *toxicologically known and expected* for individual additives. The cock-tail effect needs urgent research now!

Does the above sound familiar? The ICNIRP SAM model is used to set a SAR level for a specific model of mobile phone. The experimental setup is rigid and it specifies just one position between head and mobile phone. In real world situations, billions of mobile phone users use their phones in many different configurations and one user may easily flip between all styles of use in one day. If you do not use your phone in the way specified in the manual you exceed that SAR limit. Similarly and with respect to a possible ‘cock-tail effect’ of ELF and EMFs, as experienced in the real world, there are no guidelines and no advice on basic biological safety because there is absolutely no science behind the ICNIRP and its government and industry patrons.

At present, we do not even discuss the siting of mobile phone masts in the middle of university campuses, Wi-Fi routers in the living room or the close proximity of their siting to student halls of residences. When we begin those discussion, it will be abundantly clear that, the ICNIRP/PHE and few academic institutions have thought about nor have any intention to study the cock-tail effect from a slew of different EMFs on our psychological and mental well-being.
Leopards never change their spots and resolution of these issues will not come from government nor the ICNIRP, we must look to ourselves and the institutions we entrust to educate our children and young adults. University chancellors must get their act together and begin these discussions. Schools especially must get their heads in gear and simply explore these topics. Parents must also be made aware of the hazards and dangers from exposure to microwave radiation. Parents and parental power is pivotal in solving this exposure crisis. How can any parent continue to use microwave radiation-enabled gadgets when they know the scientific community has ‘‘clear evidence’’ that exposure induce cancers. The solution in the short term is very clear, reduce exposure in the home by hard-wiring as many devices as possible and/or reducing exposure to microwave radiation fields by switching devices off when not in use. Knowledge is power and power is freedom to choose from a position of understanding. Within so-called democratic countries, that cry of freedom has been stifled for far too long. We must first expose the conspiracy of silence between the three monkey tricksters and to shatter it with debate, discussion and discourse.

Finally, I am not arguing that exposure to microwave radiation in settings such as schools, residential homes and universities cause *all* the current issues and problems. What I strongly argue is there appears to be *an association* between exposure to microwave radiation and adverse biological, mental and psychological health effects. What is clearly needed is the use

of the Precautionary Principle whilst all these issues are sorted out. Before we even get to the Precautionary Principle, we need the oxygen of discussion, debate and discourse. The arguments for biological safety have to be widened to include non-thermal biological effects. If we carry on with the remit of the ICNIRP thermal skin heating effects only regime, we doom many of our youngsters and ourselves to lives cut short or lived within the bowels of stress, anxiety and depression.

I ask the reader to jump down one more level of the rabbit hole because I next discuss similarities in other times and places of young people suicides in response to the switching on of TETRA microwave radiation frequencies that are used by police and other emergency services. I first detail the very sinister foundations of TETRA frequencies first used and identified by researchers working for the American CIA, (Central Intelligence Agency). The goal of the CIA was to explore methods of remote mind control and these experiments were conducted way back in the mists of time.

Student suicides in UK universities and elsewhere, what do we know?

As explained earlier, exposure to microwave radiation causes biological mis-fires in the body, particularly the CNS, glands and neurotransmitter processes. If we look at suicides within the general population it is clear that these unfortunate events have been going on for a long time but they are usually random through time and space. Student suicide clusters are defined as suicides that took place in one location, multiple times and within a relatively short period of time. In other words, if cluster events occur, it is not simply a series of 'random' events, it is indicative of an environmental pollutant. The other unusual characteristic of these events are the comments of affected parents, because they cannot believe their siblings would commit suicide "because they had everything to live for". The shock of losing their loved one is also felt outside of the family and within the community. Several parents also state their child had never suffered from previous mental health problems.

That is the context and background to student suicide clusters within UK universities. Similar events happened in Bridgend, South Wales. Suicide clusters of young people occurred just as soon as novel police TETRA frequencies were switched on. Once again, I am not saying that the use of police TETRA technologies led to suicide-clusters, I argue there appears *to be an association between the two* and it needs to be investigated properly. The striking characteristics of student suicide clusters detailed in UK university students and suicide clusters at Bridgend, South Wales relate to the use of words such as, *stress, anxiety and depression* in media newsprint.

Is there a link between what happened at Bridgend and UK student suicides

In order to understand what is going on in relation to student suicide clusters within UK universities, I first make reference to what happened in Bridgend from 2007 – 2008. I then report on similar incidents involving young people in other countries. Clearly if all these events are related to the introduction of an environmental pollutant, we simply need to factor in microwave radiation from telecommunications networks as a primary suspect. Due to variability in our biology and physiological response to microwave radiation, it should be fairly simple to plot the rollout and use of digital communications with the onset of adverse biological effects. Doctor's surgeries and hospital data should be looked at for incidence of anxiety, stress and depression including the prescription of anti-depressants within the local populace. Past radiometric survey data of the area might reveal a pattern of signal intensity with cluster. Subjective comments and data on the psychological well-being of those affected could be useful in determining cause-effect or an association between the police TETRA frequencies and suicide clusters. Clearly, there will not be direct cause-effect relationships between rollout and effect because we are all different and some are affected earlier than others.

Bridgend, South Wales

It was reported in local newsprint in 2008 that 26 young people living in Bridgend had committed suicide. All of them apart from one, committed suicide in exactly the same manner. Locals in the area observed that the young person suicides coincided with the switching on and first time use of the new TETRA police telecommunication system. The new TETRA communications system uses a frequency of about 400 MHz pulsed radiofrequency radiation. The TETRA signal also transmits a frequency of 17.6 Hz as standard practice. Unsurprisingly, this frequency is part of our brainwave EEG pattern i.e. electroencephalography, that relates to states of stress, anxiety and depression.

The question arises, why did all these kids aged between 16 – 28 years old, commit suicide, one after the other in almost exactly the same way? Firstly, it is odd that mostly young people did this and 25 out of 26 young people suicided in the same manner. All things being equal, these events coincided with the switching on of the police TETRA system with its brainwave imprint pattern of 17.6 Hz. In order to compare and contrast similarities between the Bridgend suicide clusters and UK university student suicide clusters, I must switch between both events.

Young people suicides in the UK, elsewhere and in different environments has occurred all over the country and through in time – it's unfortunate but normal. What is unusual are the cluster suicides. The cluster points to an environmental pollutant that affects behaviour in different individuals in roughly the same way and through a relatively short period of time. It is interesting to note that the University of West England held a review on the causes of student suicides in 2019 and admitted that from 2010 – 2018, 14 students had committed suicide. It is also interesting to note that the PHE and 'other safety experts' were part of the university review panel. I wonder if the PHE personnel are the same bods responsible for regulating exposure to microwave radiation. If, so, what was their role and areas of expertise? The link to this review is here:
https://info.uwe.ac.uk/news/uwenews/news.aspx?id=3934

The quote below is from the Bristol Post, a Bristol based newspaper, dated 5 July 2018(1):

"Nearly 100 university students took their own lives last year in the UK as counselling services at Bristol University and UWE (University of West England) faced unprecedented demand. New figures released by the Office for National Statistics (ONS) showed that 95 students had killed themselves in the year ending July 2017 in the UK. In Bristol 13 students – 11 at Bristol University and two at UWE – have died since October 2016, which includes three in three weeks over April and May this year."

The same newspaper goes on to report the latest tragic student suicide at Bristol University:

"During the court hearing today (July 5 2018), her dad Kurle Ogundipe said in a statement: "I last saw Omojola on March 11 when she returned home for the weekend. She appeared her usual bubbly self." Mr Ogundipe said his daughter returned to Bristol on the same day and he later received a WhatsApp message from her to say she had reached her student flat in the city. Police informed him of his daughter's death three days later. He said the family were not aware of any ill health and did not think she suffered from depression or mental health problems."

In order to explain possible causes of student suicide clusters I looked for any TETRA mast installations and their distance from campus centre. The highest student suicide clusters occurred at Bristol, York and the University of West England. There are TETRA masts at Bristol and York but not at the University of West England. Lest we forget, the Stewart Enquiry of 2000 that was set up by the British government to review exposure safety from

mobile phone companies asked the telecommunication industries a simple question. What was the purpose of the ELF (extremely low frequency) of about 16 Hz which is part of our brainwave EEG spectrum to be interlaced onto the main carrier? They never answered that question. The difference between 16 Hz and 17.7 Hz is significant because I explain later that changes in intensity of response to these signals can be 'dialled-in' using incremental changes in frequency. In other words, an ELF of 16 Hz can induce states of stress, anxiety and depression and these behaviours can be enhanced by using incremental steps in frequency i.e. 16.1 Hz, 16.2 Hz, 16.3 Hz and so on.

There is a mass of scientific evidence linking a frequency of 17.6 Hz to increased irritability, stress, anxiety and ultimately depression. Perhaps there is something slightly different about the TETRA signals – burst duration, pulse duration and the way in which these signals are encrypted and inter-laced onto the main transmit frequency of 400 MHz?

Is it possible that pulsed TETRA police signals swamp and entrain our normal brainwave activities? It is more than likely that entrainment by low EMF is possible in the presence of both high and low signal strength. Two brainwave scenarios are possible, in the first one, our normal EEG activities can be swamped and taken over by a much stronger 17.6 Hz signal. This would result in a change in mood and psychological well-being. A second scenario of brainwave entrainment may occur if we are in a low mood to begin and the TETRA pulsed ELF simply increases the feelings of stress, anxiety and depression? It is also possible that if brainwave entrainment is occurring, it will affect some individuals more quickly than others to lesser or greater degree. Clearly, if exposure to microwave radiation is an environmental pollutant, similar effects will manifest in many individuals in countries using mobile telephony and TETRA communication networks.

I broaden this out by assessing what is going on, elsewhere in the world. If student suicide clusters are related to recently introduced mobile phone and TETRA technologies, we should see evidence of that link everywhere these technologies are used.

Australia[26]

This report from an Australian newspaper detailed the nature of these clusters.

"In one cluster that was identified, 21 young people had taken their lives in a remote town in central Queensland between 2010 and 2012. Fifteen young people died by suicide in a remote northern West Australian town in the same period." It is not possible to find out what proportion of these young people aged 15 – 24 years old were students. The report also mentioned a rise in self-harm particularly amongst females and this mirrors what occurred in the University of York in 2016. The overall trend for female suicides for the 15 – 24 year group has roughly doubled from 2005 – 2015.

- *Suicide rates for 15 to 24-year-olds at highest rate in 10 years*
- *A third of all deaths of young men are due to suicide*
- *41,000 young people aged 12-17 have made a suicide attempt*
- *Twice as many 15 to 19-year-old women died by suicide than in 2005*
- *Suicide rates have increased for children under the age of 14*
- *One-quarter of women aged 16-17 years old have self-harmed*
- *Aboriginal and Torres Strait Islander, LGBTIQ, seriously mentally ill youth are at high risk*

Canada –
Three students took their own lives between the fall of 2017 and May 2018 at the University of Waterloo. Four students took their own lives at University of Guelph, Ontario in 2017. Six students took their lives in Queens University from 2010 – 2011

USA –
Palo Alto*: In 2009, six high school kids committed suicide and between 2010 – 2014 an average of 20 children and young adults killed themselves annually in Santa Clare County[3] This county is better known as Silicon Valley where software programmers and computer manufacturers reign supreme.*

Fairfax County Virginia*: In 2014, seven suicides in three years at W.T. Woodson High School and two suicides within 24 hours in the fall of 2017 at Langley High School – all youngsters and by all accounts, everything to live for.*

Ohio: *During 2018, there were six, teen suicides in 6 months in a Ohio school district[3]*

Cornell University New York *– six students took their own lives in 2010*

Barry Trower, ex-MOD (Ministry of Defence) physicist

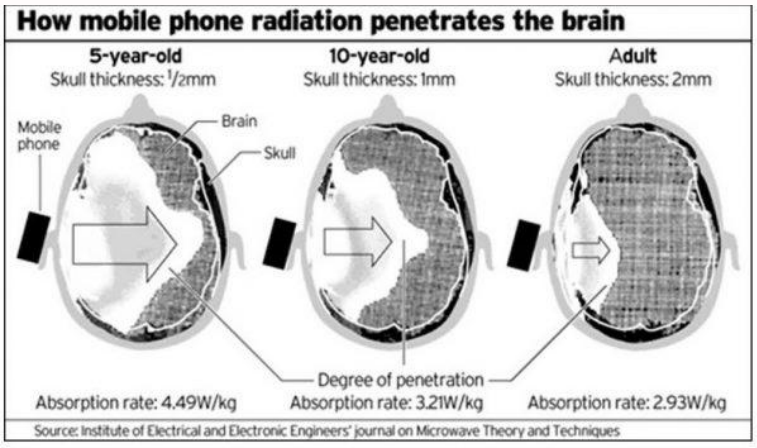
In 2009 the UK's ex-Ministry of Defence physicist and renowned microwave weapons expert Barrie Trower said of the Bridgend suicides

"I think I can link them all together and I think it's a viable reason to look into. We know the suicide rates are rising. The increase in suicides does match the speed of low level microwaves. It's happening in every country in the world, not just Bridgend."

In 2008 he wrote a report on the effects of TETRA[27] for the UK Police Federation and he said at the time *"waves from the new police radio system could create "anxiety leading to suicide".* His report highlighted the symptoms of electro-sensitivity which included depression, lack of concentration, personality changes and suicidal tendencies. He also said young people were particularly susceptible as their immune system was not wholly developed**.** Mr Trower went on to add, *"It's the young who get it first," he said. "The younger you are, your skull is thinner than an adult's so the waves can go through and your immune system is not fully developed. The suicide rate is leaping up all over the place and it happens to cluster in areas."*

That report was written in 2008 by a man who worked in the UK armed forces. It is a great pity that there is so much information and data from around the world on the harmful effects on exposure from microwave radiation yet much of it is mothballed within a conspiracy of silence within the citadel of the 4 monkey tricksters.

The image below graphically illustrates the depth to which an electromagnetic signal penetrates the skull based on cranial bone thickness. Perhaps we might get a bit more resolution on this if we measured electric voltages and magnetic fields separately. Generally speaking, Pb (lead) for example is very good at attenuating electrical fields but not magnetic fields.



I finish this chapter by discussing the various ways we can cut down on how we can reduce our exposure to microwave radiation.

Reduce your exposure by switching off your gadgets

Much of what I suggest will make unpleasant reading because we are all used to the functionality of Digital Age products. Their use within society is ubiquitous and our uses deepen and widen with each passing month. In many ways, digital products have become the social lubricants of society. Unfortunately, there are few things in life which are totally free of side-effects and we need to understand something about the 'dark side' of modern telecommunication networks. If we do, we can tame the beast and once again, live a happy and depression-free life.

There are many scientists, politicians and medical professionals who understand all of this and they have been fighting to change the state narrative of the three monkey tricksters for year after year. The science of harm from exposure to microwave radiation is out there and it is vast. These 'alternative' scientists and institutions will continue to make their voices heard. If we all take individual action, we can lessen the burden of our exposure to microwave radiation. It is at this point that a fork in the road magically appears, do I believe and trust in government or is there something else I can do? This is a 'red pill, 'blue pill' moment. If you swallow the 'red pill', there are lots of steps we can do straight away to minimise the pollution from microwave radiation.

- think about all the gadgets you own and simply switch them off when not in use. Firstly, think about your Wi-Fi router and the way in which it is able to cover much of your house with microwave radiation. You can either switch it off before going to bed or better still, hard-wire your computer to the router permanently. If you go the permanent hard-wire route, you decrease electrosmog to you and your family. If everyone did that including schools, universities, hospitals and work places, that one act would reduce our collective exposure from microwave radiation by orders of magnitude.

•incidentally, another bonus hard-wiring your devices to your router is the absence of any Wi-Fi blackspots in your house or office. The downside is you have to lay cables from the router to the rooms where you need Internet access. This is exactly what it was like in the early days of computers. Everything was wired including speakers, keyboards and mice.

Many telecom providers give you the choice to use Wi-Fi or not. If you take the hard-wire approach, you can switch off the Wi-Fi in the router settings panel. Most settings panels on the router allow you to switch off the 2.4 GHz and the 5 GHz signals separately. The telecoms companies, however, want you to keep your Wi-Fi on permanently because they use your router as a 'hot-spot' to anyone passing by who needs to use it. Periodically, most telecom companies upgrade or refresh your router settings and this action resets your Wi-Fi. Panel setting back on. Simply check your Wi-Fi greenlight is not on or simply use an old A.M. radio or EMF detector to check. I can feel when the Wi-Fi is on and I have learned to trust what I feel in my gut!

I detail how we reduce exposure to microwave radiation to several (not all) EMF emitting products.

•possibly one of the worst EMF offenders in your home are DECT phones. The best thing you can do with a DECT phone is to either change it or replace it. DECT phones continually emit microwave radiation the second you plug it into the mains. This applies whether the phone is in use or not. If you cannot use something else, switch to what is called the 'eco' DECT. The eco DECT phone only transmits microwave radiation during a call. This means the house is not saturated in signals all day long. The bad news is, you still receive microwave signals for the duration of the call. The simplest and safest solution is to use the old fashioned land-line handsets which means you lose the functionality of phone portability. You can mimic the functionality of a DECT phone by replacing with a much longer telephone cable. It is not ideal but much safer in terms of exposure.

•there are a plethora of devices that simply sit and wirelessly respond to voice commands. Digital assistants have been around for some time now and I cannot for the life of me understand the need to shout to your assistant, "play my favourite tracks". I don't get any of it but lots of people do. Simply switch it off when not in use and switch it on you need to use it.

•back in the day, baby monitors monitored voice only and operated at 27 MHz and 49 MHz. Nowadays, you can have video and audio contact with your child but the downside is, modern baby monitors use 2.4 GHz as an operating frequency. These monitors are placed next to baby and whilst they do their job they also irradiate baby with microwave radiation. If possible, go 'old-skool' and buy a second hand one that uses 27 MHz or 49 MHz.

•the next one is a biggie because mobile phone telephony incorporate different levels of user-entrainment. User-entrainment simply means you seamlessly carry it with you where-ever you go and you may suffer psychological trauma if you lose it or leave it at home. If you must carry it everywhere, keep it as far from your body as physically possible. It is especially important that you keep it away from the genital, breast and bum areas of the body. There are increases of breast and rectal cancers in women who shove their phones in their back pocket and down their bra. Each time you pass a mobile phone mast signal, it pings your mobile phone and information is passed between the two. The police makes use of these data when they track our movements. Therefore, the mobile phone still emits microwave radiation to and from a base server antenna even when you are not making a call. If your mobile phone is nestled in

your breast, back or front trouser pockets, it is irradiating microwave-sensitive areas of your body.

•mobile phone frequencies incorporate lots of frequencies that are inter-laced onto the main transmit frequency. These 'other' frequencies develop psychological bonding between you and your phone by altering your brainwave patterns. You may not like the idea behind that but they have been using this technology since the incept date of mobile telephony. Try and reduce your dependency on your phone. Fight the urge to scroll through your cyber-stuff. Fight the urge just to hold your phone in your hand. All of it is a result of a behavioural template that is made possible using 17.6 Hz and other brainwave frequencies. The other behavioural modifiers are the sounds and vibrations that occur from the phone itself when you receive a text, message or call. The end result of all these frequencies is to condition you into a response. How many times have you noticed that when you hear the ringing of a popular phone chime, everyone reaches for their phone? This is a deliberate form of Pavlovian conditioning and it is designed to elicit an automatic response from those conditioned.

•question your bosses at work if they expect you to be on-call 24/7, 7 days a week simply because a company phone is part of their business model. If you are a heavy user of a mobile phone and it is integral to your job, be mindful that exposure to that mobile phone throughout each day is not good for your health. From time to time I get close up to police and transport police and they carry an awful lot of essential gear on their persons. They carry their TETRA mobile phones on their chest. I wonder how many of these personnel suffer from pains in the chest and lung abnormalities. Simply question your bosses and ask them if they are aware that exposure to microwave radiation causes cancer. Also, chat to colleagues and former personnel to see if there are any common patterns of dis-comfort or disease. Employers have a duty of care and this care extends to the use of equipment that you have to use in order to carry out your duties.
A further example of this is to look at the number of former soldiers with cancer and other bodily dis-comforts who formerly worked in the Royal Signals. You find that quite a few of them developed all sorts of adverse biological effects including cancer because their entire day and working life was spent in an environment of radiofrequency radiation. The Royal Signals is responsible for communications within the field of battle. The radio transmitters they carried around had relatively high transmitter powers. I observe more and more in supermarkets and stores that employees are expected to wear speaker microphones around their head all day. If you are one of these individuals, question your employers about the basic stuff first, are they aware that exposure to microwave radiation causes cancer. If lots of us do this, we change the horizons of our consciousness because questions of safety get bigger and bigger. When you question the small stuff in your life, you quickly realise it has big consequences.

For many individuals, none of this is possible and they feel they must carry on with their life as it is. That is absolutely fine and it is your decision and it comes from a place of understanding and your informed consent. On the other hand, many individuals will have clarity on many aspects of their exposure environments and simply abandon and let go, all that is not working in their lives.

I am sort of unusual in my use of digital products. I do not do any kind of 'thumbs up' social media fora, never have and never will. I have never owned a 'smart phone' and the last time I watched terrestrial TV, especially the BBC was years ago! Everything in my home is hard-wired and I monitor the activities of my kids when they sit in front of a computer, not for content, it is to make sure they do not stay on the computer for too long. My three kids are of

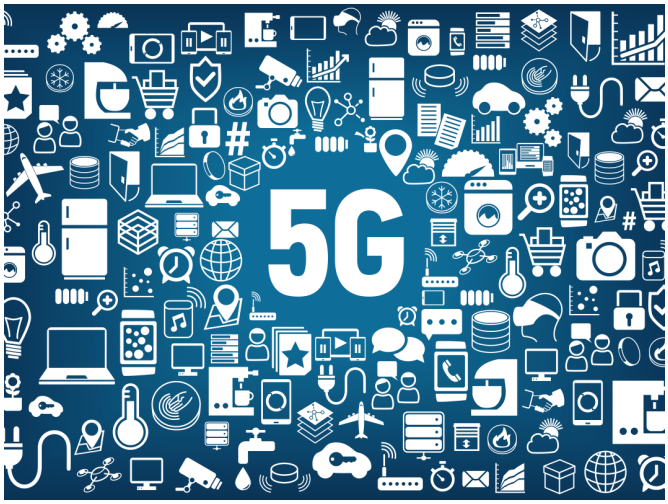
school-age and one thing I unsuccessfully try to instil in them is to pursue knowledge and understanding for its own sake and not to simply bask in the glow of an A^+ for their homework assignment. This is the best the missus and I can do to ensure that exposure to microwave radiation is kept as low as possible whilst in the home. Their schools and other establishments of play and leisure are an entirely environment.

I have used computers since my early days as a student and my focus has been on the use of statistics, Monte-Carlo predictive modelling, environmental modelling of gases and liquids, particle deposition transport processes, probability modelling and using software to drive analytical equipment that detect and quantify environmental pollutants In that sense, I am not a Luddite and do not wish anyone to adopt a lifestyle which is no longer appropriate to the needs of their current job or position within society. We all have to do what we have to do yet the key of happiness behind any work related use of digital products is to ask your employers a question before it happens,

"*what do my employers understand about the nature of exposure from microwave radiation*"? As I mentioned previously, some of us will be able to make life-style changes and others will find it impossible. In all situations, do what you can in order to reduce your exposure to microwave radiation. You might be limited in what you can demand within a working environment but you have more choices available in your home environment.

In the next chapter I focus on issues of 5G once more.

Chapter 6: 5G energy, frequency, vibration and signal propagation



Even though 5G extends up to a frequency of 300 GHz, I limit this discussion to a frequency of about 50 GHz. In a previous chapter I discussed frequency, wavelength and energy for 2G, 3G and 4G technologies. This was followed with a brief appreciation of how signals at these frequencies propagate or move around the environment. As explained earlier, frequencies from say 10 GHz to 50 GHz act very differently to their lower cousins around 2. 4 GHz. Besides the technical aspects of 5G I also discuss the 'unspoken' agendas of this technology and try and make sense of what is cooking beneath the bonnet.
Prior to starting this chapter I noticed a headline from a WEF (World Economic Forum) speaker talking about 6G. That speaker was none other than Nokia CEO, Pekka Lundmark and he said that his company is involved in the development of 6G technologies. He went on to say that it will be operational by 2030 but significantly, not used in smartphones – that got me thinking!

I suspect 6G will be very, very different to what was talked about at the World Economic Forum, Davos 2022. I'll take a wild guess based on developmental iterations from 2G, 3G, 4G and 5G. Each iteration involves a frequency increase which in turn impacts the size of antenna and how that antenna communicates to and from mobile towers. Firstly, the propagation of signals around 300 GHz and above will be strictly line of sight. In order to achieve communication between base-antenna-user, the field intensity of these signals will by necessity be relatively high. Clearly, the infrastructure of 5G will also incorporate aspects of 6G technology as will the use of satellite technologies.

I also suspect Lundmark was talking about the day when 6G-type infrastructure i.e. transmitter and receiver components will be small enough to be bundled onto one discrete chip and this control chip will be implanted into human bodies. That is why he said these technologies will not be suitable for smartphones. In order for signals to travel between the implanted chip in our bodies and base server, the distance between user and base antenna will by necessity, be as small as possible. That means (a) lots and lots of base to receive antennas and/or (b) use of satellite technologies. Perhaps this dystopian vision of a future 2030 is not too far-fetched when you consider the infrastructure of smart cities and the IOT (Internet of Things) involves the multiple and connected up use of many consumer items permanently connected to the Internet or perhaps by 2030, the Internet morphs into the 'Control Grid'?

Elon Musk's satellite system that was supposedly brought online to cover those areas of the world that do not have Internet connectivity. I suspect Musk's satellites will form part of 5G/6G telecommunication infrastructure /surveillance /weapons network. Presently, Elon Musk's microwave radiation satellite system is being used by the Ukrainian government because the Russians downed their normal telecommunication services. OK, speculation over, lets discuss where we are now in 2022 in relation to the imminent rollout of 5G.

In order to deploy 5G, the telecoms industries still require longer wave frequencies i.e. 4G infrastructure and short 5G propagation frequencies coupled with a huge amount of additional antenna systems. If you follow OFCOM's website, it tells you which parts of the electromagnetic spectrum they are flogging off to the highest bidders. Frequencies between 700 MHz (long propagation) up to 4 GHz is seeing a lot of the action. In other words, the old 2G, 3G and 4G frequencies will still be used by the telecommunication industries to usher in the Age of 5G. As the infrastructure of 5G comes fully online, the 'back-bone' frequencies of 2G and 3G will slowly disappear and become obsolete.

We have covered the propagation characteristics of 2G – 4G previously. We also looked at frequency, wavelength and energy. We discovered that the energy contained within one oscillation of a microwave signal at 2.4 GHz i.e. one wavelength, packs a big wallop of energy relative to the same transmit power along the wavelength of a medium wave broadcast signal.

The human body is adversely affected by microwave radiation from about 400 MHz – 5 GHz. In order to understand what happens when 5G frequencies are routinely transmitted into our homes and bodies, we must look at a bunch of frequencies that might be used for 5G and determine their wavelength, energy and signal propagation characteristics. If we look at the wavelength of a bunch of different frequencies, we can better visualise a simple fact, if you keep the transmit power the same, the energy of one wavelength is inversely proportional to its frequency. In other words, the higher up in frequency, the shorter the wave length. The millimetre wavelengths of 5G by definition have extremely high power density fluxes of electromagnetic fields and they will pack a hefty punch to the body. It is the energy within one wavelength that will be the limiting factor in exposure to these forms of high end microwave radiation.

A microwave signal at:

1 GHz has a wavelength of 29.98 cm
10 GHz has a wavelength of 2.99 cm
15 GHz has a wavelength of 1.99 cm
20 GHz has a wavelength of 1.499 cm
30 GHz has a wavelength of 9.99 mm (hence millimetre wave definition)
40 GHz has a wavelength of 7.49 mm
50 GHz has a wavelength of 5.99 mm
60 GHz has a wavelength of 4.99 mm
70 GHz has a wavelength of 4.28 mm
80 GHz has a wavelength of 3.74 mm
100 GHz has a wavelength of 2.99 mm
200 GHz has a wavelength of 1.49 mm
300 GHz has a wavelength of 0.99 mm

I have no idea what frequencies will eventually be used for 5G but within its initial rollout but I suspect frequencies below 30 GHz will dominate because the costs of manufacture for transmitters in excess of 10 GHz will be high. The higher up in frequency you go, the more technologically demanding and expensive the manufacturing of communication systems become.

Previously, I used the analogy of a 20 watt transmitter emitting a signal at say 50 MHz and visualising the energy distribution along its wavelength. A wavelength at a frequency of 50 MHz is 5.99 metres. A wavelength at a frequency of say, 20 GHz is 1.499 cm. In other words, it is clear to visualise that the energy distribution along a typical 5G wavelength is much higher compared to what we currently experience. What we currently experience in terms of adverse biological effects is bad enough yet it will get worse at 5G frequencies simply due to the increased power density of EM waves at these wavelengths.

That however, is just one half of 'what are the safety implications' of exposure to 5G signals. The other half of this equation relates to the propagation characteristics of the signal itself. The good news is that frequencies as high as these are essentially line of sight and of short range. That said, 5G frequencies will still be subject to the usual atmospheric changes in refractive index, refraction, reflection and multi-path effects. As a general term and whatever type of location, 5G is essentially 'line of sight' and that term will determine the placement of both transmit and receive antennas for these frequencies. Radio hams love playing at these frequencies because the propagation paths remain the same yet change within seconds or hours to enable long distance communication in excess of 100 km.

The telecommunication industries, however, demand stable signal paths between us and their transmitters. In order for them to achieve reliable industry-grade communication, the only option for them is to install very efficient antenna arrays and lots of them or they can increase the transmit power, or they can do both. In order to achieve stable communications, I suspect the ultimate aim of the telecom companies is to deploy antennas across all social infrastructure, street lamps, traffic lights, bus shelters, litter bins etc. A second strategy will be to employ satellite communication as transmitters.

In order for 5G to work for government and the telecommunications industries, they will need to deploy hundreds of thousands more antennas specifically for 5G frequencies. If we look around us, particularly with reference to the 5G antenna masts masquerading as council street lamps (see Figure 1, chapter 2) they are well within striking distance in achieving their goals.

The ICNIRP and government regulators remain very quiet on adverse biological effects from 5G mobile phone frequencies. They have nothing to say and nothing to add in terms of assessing safety. In effect, the ICNIRP and governments adhere to their 'conspiracy of silence'. If we cross the pond, Robert F. Kennedy Jr of the CHD, (Children's Health Defence) successfully sued the US FCC (Federal Communications Committee) and I quote:

"The U.S. Court of Appeals for the DC Circuit published its decision Aug.13. The court ruled that the FCC failed to consider the non-cancer evidence regarding adverse health effects of wireless technology when it decided that its 1996 radiofrequency emission guidelines protect the public's health.

The court's judgment states:
"The case be remanded to the commission to provide a reasoned explanation for its determination that its guidelines adequately protect against harmful effects of exposure to radiofrequency radiation…"

CHD Chairman and attorney on the case Robert F Kennedy, Jr. said:

"The court's decision exposes the FCC and FDA as captive agencies that have abandoned their duty to protect public health in favor of a single-minded crusade to increase telecom industry profits."

Robert F, Kennedy's win in forcing regulatory organisations to do their work properly is a paradigm-shift within the concept of consumer safety in this on-going, thermal versus non-thermal biological effects argument.

I reproduce a peer-review scientific article carried out by Lennart Hardell from the Research Foundation for Environment & Cancer and Mona Nilsson from the Radiation Protection Foundation. It is the first 5G exposure study I have come across. The article itself is in Swedish but I got the gist of it from here: https://mieuxprevenir.blogspot.com/2022/02/first-study-so-far-5g-causes-microwave.html

"*The first ever study of the health effects of 5G radiation on humans shows that 5G causes typical symptoms of microwave syndrome as well as a massive increase in microwave radiation. The case study also confirms once again that radiation well below levels allowed by the authorities causes ill health. The study was published in the journal Medicinsk Access no. 1/2022 and was carried out by the oncologist and researcher Lennart Hardell from the Research Foundation for Environment & Cancer and Mona Nilsson from the Radiation Protection Foundation. The study concerns the health consequences for a man and a woman who received a 5G base station directly above the apartment, only 5 meters above the bedroom.*

Measurements before and after the installation of 5G on the roof showed that 5G caused a massive increase in radiation in the apartment. Before 5G, there were already base stations for 3G or 4G in the same place directly above the apartment, but switching to 5G technology led to an increase in radiation from 9,000 microW / m2 to a maximum of 1,690,000 microW / m2.The symptoms that occurred in the man and woman after the start of 5G are typical of the microwave syndrome: fatigue, difficulty sleeping. emotional impact, nosebleeds, increasing tinnitus and skin problems in the man. The woman had more symptoms than the man with severe sleep disorders and dizziness, followed by skin problems (burning sensation, tingling in the skin of the hands and arms), concentration problems, irritability, tinnitus, balance problems, impaired short-term memory, confusion, fatigue, tendency to depression, heart and lung symptoms (palpitations, heaviness over the chest) and feeling of warmth in the body. All symptoms decreased or disappeared completely after 24 hours after moving to another home with significantly lower radiation.

The microwave syndrome.
What is shown in this first ever study on the health effects of microwave radiation from 5G is consistent with the symptoms that have been described over 50 years ago as an effect of whole body exposure to microwave radiation and were called the microwave syndrome. Microwave syndrome is also a recognized concept internationally today together with the name "electromagnetic hypersensitivity" (EHS), in Sweden also called "electrical hypersensitivity" regarding those who react already at very low levels and have developed particularly high sensitivity. It has been repeatedly described that the typical symptoms of microwave syndrome subsided when exposure ceased or decreased sharply, as in this new study.

Researchers who have conducted scientific studies of occupational exposure to microwaves described symptoms such as fatigue, dizziness, headaches, difficulty sleeping, concentration and memory problems. These symptoms were associated with exposure to radio waves or microwaves. It was found that the symptoms generally subsided when the exposure ceased. "The sensitivity to microwave radiation is individual. Even very low levels of radiation can cause medical symptoms in particularly sensitive people (hypersensitivity to electricity / EHS).
5G increases the radiation enormously. In addition to showing that 5G causes the microwave syndrome fairly immediately, the case study also shows that 5G leads to a massive increase in radiation in our environment. Previously, there was a base station for 3G or 4G in the same place above the couple's bedroom, but replacement of the equipment and commissioning of 5G led to an explosive increase in the measured radiation.

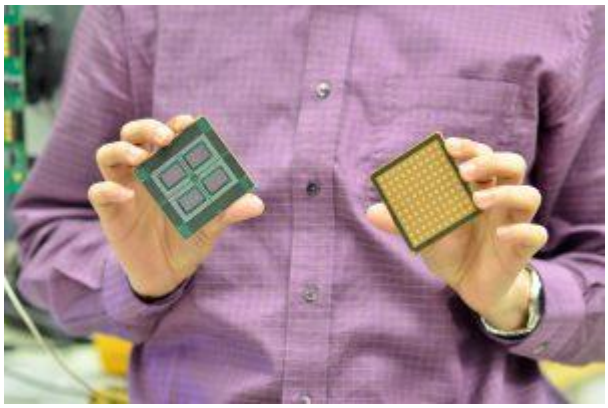
The measured extremely high values in the home, maximum 1,690,000 microW / m2, are still significantly lower than the current reference values recommended by the Swedish Radiation Safety Authority, SSM: 10,000,000 microW / m 2 as an average value over 6 minutes, which means that the maximum value can be allowed to be significantly higher than 10,000,000 microW / m2. SSM's reference value does not protect against the symptoms that characterize the microwave syndrome, nor against cancer and other chronic diseases. This is why ill health can occur even though the radiation is far below the reference value".

The article above underlines the fact that if we are caught within the cross-hairs of 5G frequencies, its radiation will be very intense because of the very short wavelength of these high end microwave frequencies. The next issue to consider is antennas.

5G antennas

The physical length of an antenna is based on half its wavelength. The wavelength of a 30 GHz frequency is 9.99 cm and half this length gives you the physical size of antenna needed for this frequency. This half wave length antenna is called a dipole and in physical terms it is very small. A dipole for the 30 GHz band is approximately 4.99 cm long. In fact all of the antennas for the 5G frequencies from 15 GHz upwards will employ antenna types known as driven arrays. An array is exactly what it says on the tin. An antenna array is group of antennas that are connected together in such a way that the antenna can fire its radiation in one direction. Many antenna types squirt the radiation in a circle and arrays are very useful because they can be designed to squirt radiofrequency radiation in one direction only.

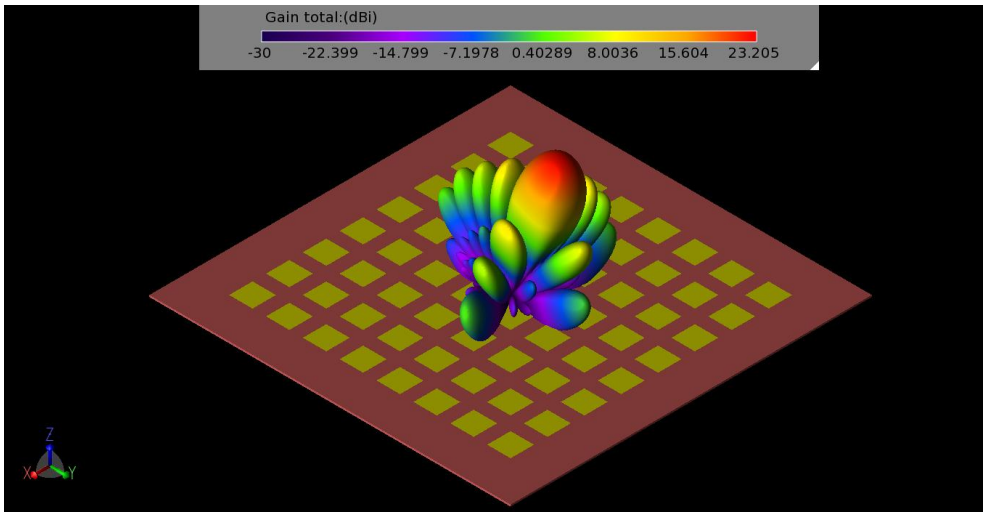
You can add say, 64, 128 or 265 antennas together to form a driven array and the antenna looks something like this and yep, the installation itself is very, very small..



Top and bottom images of the silicon-based mmWave phased array antenna module operating at 28GHz [(28)] .The component is approximately 2.8in by 2.8in (approximately half the size of a typical smartphone). On the left are four monolithic silicon integrated circuits attached to the bottom of the package and on the right are dual-polarized antennas on the top of the package.

NB: dual polarised means the antenna works in either horizontal or vertical polarisation.

The radiation pattern from an 8 by 8 array of this type looks like:



The maximum gain and direction is illustrated through the red coloured lobe[29]. The scale on top of the images gives you the gain of the antenna in dBi (decibels gain relative to an isotropic radiator). You can clearly see the beam-forming properties of antennas of this type and something similar to this sits at the top of every BT pole mast sited literally outside our front doors. An antenna array is a very useful way in which you connect lots of antennas together, suitably phased or connected together to produce a beam of radiation in one direction. In terms of 5G antennas that now sit not far from your front door, the antenna system will be an array and it is designed to point its radiation directly at your house. See following figure

You can increase the power of your signal using this type of antenna design because the main beam of radiation radiates more strongly in one direction relative to other directions. The angle and direction of the radiation pattern of the array can be used to pinpoint exactly where you want that squirt of radiation to cover. The BT pole masquerading as a council street lamp has been installed at a height of a second story bedroom window and its main beam or radiation lobe points directly at your house, specifically, the bedroom where you sleep in one room for approximately 8 hours per day, every day.

These BT telecoms poles masquerading as council street lamps are everywhere. When they finished installing these poles (and no-one was consulted on their dual purpose), BT and Openreach started the installation of 'gigantus erectus', the massive 5G transmitting masts. I repeat, a legal precedent was set in a High Court of Planning in which the judge asked the telecom company for safety data. The council and telecom company (Hutchinson) could not provide any and consequently, did not contest the hearing. The brave activists who stopped 'gigantus erectus' being installed 25 m from a primary school in Brighton, have done everyone a favour by providing a legal remedy to challenge any 5G mast installation planning application.

I next discuss what some people call the 'phone-zombie' effect. Almost all behaviours of this type can be explained through the use of ELF (extremely low frequencies) used by the telecommunications industries from Day One. The issue is more to do with brain entrainment and mood-shaping technologies with judicious amounts of Pavlovian-type conditioning.

Chapter 7: The silent war for our mind

In this chapter I invite the reader to really tumble down the rabbit-hole one level deeper than previous. If you think that we base our major life decisions from a basis of reasoned, seasoned and rationalised judgement, you may need to think again. I ask the reader to simply remember how the British government, with its psychologist 'nudge unit', invented, supported, incorporated and intensified a fear tactic campaign around COVID-19 so hard that some people one year later in the dead of summer continue to wear masks and to stay home. Figures like Whittey, Vallance and Tam, the TV, print, radio and social media, turned the propaganda wick up so high, it did indeed, 'scare the bejesus' out of half the nation. That is just one example of a government intent on spinning and manipulating public opinion on a singular event in which many individuals gave their power away to the government and complied with everything they wanted.

Imagine if all the big events within our lives were nothing more than orchestrations of governments to engineer anything from wars to panic buying of everyday consumables such as table salt or sugar? Imagine if these nudge events predate our lives to stretch back hundreds of years? The only difference between then and now is, for the first time in our lives, we are beginning to notice not just what they are doing but significantly, the reasons why. It is at this very deep level of the rabbit hole that I freely discuss what the mainstream media dub, 'conspiracy theorist' because what I discuss goes way beyond the mainstream narrative and the 'chattering classes' in particular, do not like it. That is the sole reason for 'cancel culture' and that term itself stems from the annals and psychological 'store-room' of nudge units, black-ops and CIA psychological tactics. None of these labels or associations stop, impede or de-rail my simple job as messenger. I have no regard for ego or status and worry not one jot what other scientists or other individuals think about me or what I write about. I simply follow the facts (and the money) and connect the dots. This next section is about connecting the dots.

TETRA, the C.I.A. and its mind control programme

In 2018, I wrote an article on the police TETRA communications system. The article is all about the similarities of frequencies and technologies used in past CIA experiments and the incorporation of the very same frequencies into the TETRA communications network. When TETRA first came out it was used by militaries, security organisations and any organisation that was looking for an encrypted method of communication. Back in the 1980s most government bodies such as police, fire and ambulance used communication systems that were open to eavesdropping by anyone wishing to listen. The introduction of TETRA changed all of that because the police now had an encrypted communications network that was almost impossible to hack. To put the introduction of TETRA into context and why the emergency services felt they needed it, we must understand something about the life of a typical radio ham and what they get up to when pursuing their hobby.

In 1985, I passed my RAE (Radio Amateurs Examination) and bought myself a really antiquated, 2nd world war receiver made by RCA Victor. These receivers were made from 1941 – 1945 and it was called an AR88D. In them days, A.M. reigned supreme and surprisingly, both police and mobile phone telephony used frequencies I could listen to on my trusty AR88D. It is not illegal to listen to the police, fire and ambulance etc. but it is illegal to act on any information you listened into. Thus, the emergency services and mobile phone networks operated across frequencies that anyone could monitor. The TETRA system provided these organisations with a means to encrypt all their operational stuff which meant radio hams and short wave listeners could no longer monitor these signals. That is the context and background to TETRA. In an earlier chapter, I also made reference to TETRA transmitters and its link to stress, anxiety and feelings of hopelessness.

A typical police TETRA mast antenna setup

Thirty years into the Digital Age and disturbing trends are revealing themselves: rates of anxiety, stress and depression have massively increased; unusual suicide clusters of young people have been documented; worryingly, we are also witnessing an overall reduction in our species fecundity, including a decrease in sperm count, sperm motility and reproductive success. In short, our society is rapidly moving into a zombification of its senses. It is easy to witness these events on a global and daily basis where masses of people are frequency-

entrained by their smartphones. During all this time and in spite of the many voices raised in protest against the safety of microwave-enabled gadgets, governments, telecoms industries, standards setting organisations and so-called government regulators have all sung from the same hymn-sheet: they have chorused *'nothing to worry about, move along please'***.** Not only that, but the mainstream media have done everything in their powers of persuasion to get us to buy into these devices in an endless cycle of consume, upgrade, buy, upgrade and consume, *ad nauseum*.

None of it makes any sense until we expand our consciousness to include the machinations of the military industrial complex and its endless cycles of war, war, war. To understand the present, we have to dip into the past. TETRA for example has its origins in the Cold War and mind control research programmes of the 1970s. I wrote the following article in 2018 and it is all about the potential for societal mind control.

"*TETRA* *is a digital telecommunications network used by many police forces and emergency services the world over. It is a complex system of communication which allows for low latency and encrypted speech via mobile, radio or walkie-talkie. Eerily, TETRA owes its origins to mind control research work commissioned by the US Department of Defense (DST-1810S-074-76) from the 1970s.*

Forty years ago Dr Ross Adey [(19)] was tasked with a C.I.A project whose purpose was to elucidate mind control strategies using electromagnetic frequencies – this work was known as ***Project Pandora****. The basis of his work was to splice ELFs (extremely low frequencies) characteristic of our brainwave electro-encephalogram spectrum onto microwave frequencies. Brain wave signals that tell the brain what to think, what to do and to ensure its physiological integrity lies within the spectrum of 1 Hz – 30 Hz. Adey discovered a behavioural modification 'template' in which he could add ELF signal from 6 Hz – 20 Hz onto microwave carrier frequencies. He exposed individuals to these frequencies and in doing so was able to* ***predictably*** *modify behaviour. He found that (a) using a power density of 0.75 mW cm [2], could modify human behaviour and (b) behavioural states could be modified in increments using similar frequencies i.e. he could also induce various intensities of certain behaviours incrementally by upping the frequency i.e. 18.0 Hz, 18.1 Hz, 18.2 Hz etc. The implication of this research is both startling and scary because it means that someone you know nothing about can remotely dial in a set of frequencies to a target audience and precisely modify their psychological well-being or 'grumpiness' at will. Psychological changes include all aspects of human consciousness including anger, rage, placidity, joy, bliss, sleepiness, calmness etc.*

During these mind control experiments, Adey also used a carrier frequency of around 450 MHz of pulsed microwave radiation. The pulsing effect created a pseudo-ELF signal of 17.6 Hz. ***Interestingly, the TETRA police communications network for the UK was granted exclusive use of a similar frequency of around 400 MHz using ELF signals of 17.6 Hz.*** *Surely, this is pure coincidence but wait, there is more:*

Alasdair Philips of Powerwatch (UK) said, "By use of my microwave detector, I have found that mobile phones of the newer type, give off a pulse modulated microwave signal of around 0.75mW/cm [2] at the earpiece. This may be coincidence, but it is exactly the intensity required for behavioural control as found by Dr Ross Adey, the pioneer of microwave mind control. So in theory, an ELF signal could be ***added*** *to the microwave network to feed a precise behavioural pattern into every mobile phone user in the UK (http://www.whale.to/b/philips2.html)".***

Whilst involved with Project Pandora and with co-worker Suzanne Bawin, Adey also discovered that under certain conditions of frequency and signal amplitude, it was possible to ***induce calcium ions efflux in brain tissue****. To cut a long story short, this mix of microwave and ELF signals is capable of disrupting or shorting the normal physiology of the brain. When this happens, the most common subjective complaints from those exposed to these frequencies included* ***headache, fatigue, perspiration, dizziness, menstrual disorders, irritability, agitation, tension, drowsiness, sleeplessness, depression, anxiety, forgetfulness, and lack of concentration****. Before his death in 2004, Dr Ross Adey released a video to leading UK researchers which proves that not only does the TETRA system cause ELF zombification by massive release of calcium ions in the cerebral cortex and the nervous system,* ***but the activated calcium ions also cause massive hormonal disturbances which lead to frenzied imbalances, emotional and physical states (4).***

Perhaps, TETRA is yet another cause of young people depression and subsequent suicide? By understanding the past we can now make sense of the present. The TETRA police telecommunications networks use the exact same power densities and similar signal frequencies that Dr Adey used in Project Pandora. These types of communication networks are now common across all areas of the UK and the European continent. Police stations within the United Kingdom are normally sited within (usually poor) urban areas and share the same tall buildings used by cellular phone transmitting equipment. Subjective complaints from those exposed to these frequencies speak of ***anxiety, stress, irritability and depression****.*

I find it very strange that many of the students who committed suicides, whether in Palo Alto or Bridgend, respectively used similar methods to end their lives. In Bridgend twenty four out of twenty five suicide victims, both male and female, chose to end their life by hanging. In the Palo Alto suicide cluster, five out of six students chose to step into the path of nearby trains. The mainstream media dubbed the character of these events as 'copycat' but to me, this pattern of behaviour could also be described as a 'programmed' response to external stimuli.

One other important aspect of the mind control research Adey carried out is that he argued its effects are ***'non-linear'****. What he meant by this is that not all of the people exposed to the same intensity of frequencies will be affected in the same way and to the same degree.*

To those interested in investigative journalism, based on all that is written above, it should be fairly easy to find out the physical location of police stations and their transmitting and ancillary equipment. The distance of these antenna networks can then be measured to individual suicide victims either by where they lived or worked. It should be possible to work out an exposure regime for individuals in order to determine whether or not there is a common denominator between proximity or distance to TETRA antennas and individual suicide victims. This article is probably the most difficult I have written because many of the victims family and friends are still with us. In spite of that, it is important we do not get into a cycle of 'hand-wringing' which may lead to a form of premature closure of these issues. We must explore every possible cause of these events if we are to ensure they do not happen again. Whether it is TETRA, cell phone, smartphone, DECT phone or microwave oven, all avenues must be fully investigated.

Before closing, a piece of advice to anyone who has to work a communication device around the head or on the body. This includes shop workers, service centre staff, shop security personnel, serving policemen/women and ancillary personnel, be aware that close proximity to microwave radiation and especially TETRA antennas on a daily basis is hazardous to your

health. For serving police officers, please note on your body where your handset is located. If you get any pains or discomfort of any kind esp. heart palpitations, heart-burn, shortness of breath etc. in these areas, seek advice from your union, or seek external medical expert help. If there is no help or advice forthcoming from your union or medical staff, seek information on the hazards associated with wearing a device that constantly emits microwave radiation each second you wear it. It is sensible to keep a reasonable distance between your heart and any form of microwave-enabled product – it is now proven that exposure to these devices initiate cancers of various types".

I now move into a slightly different and abridged aspect of the 'phone-zombie' aspect of modern telecommunications and society. It was also written in early 2018 and published here: https://www.naturalblaze.com/2018/03/smartphone-addiction-brainwave-entrainment.html

"There is a silent war going on for control of our consciousness. A war on our consciousness is simply another method of attempted social control. This silent war on our consciousness goes under the name 'psychotronic' or SSSS (silent sound spread spectrum). It involves the militarization of sound frequencies to entrance, entrain and hijack our natural brain wave activities. The patent for this technology was developed for military use by Dr.Oliver Lowery of Norcross, Georgia, and is described in US Patent #5,159,703 — "Silent Subliminal Presentation System" for commercial use in 1992(1).

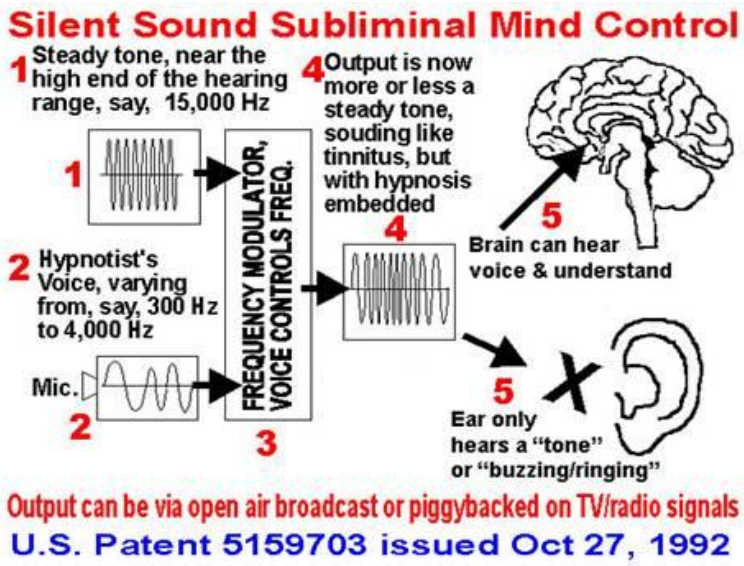
The undetected use of SSSS technology against the citizens of planet Earth was only made possible via the recently integrated use of microwave frequencies and ELFs (extremely low frequencies) within urban and residential settings. The technology is fairly simple to visualise. First, you need to transmit a 'carrier frequency' and you lace whatever information or 'intelligence' you like to that carrier frequency. You can add voice, images, data or in this scenario, ELF (extremely low frequency) sound. A digital 'pipeline' enables you to add lots of information onto a stable carrier frequency. Nearly all household digital gadgets transmit and receive signals between themselves and the Internet. Digital products use frequencies i.e. between 400 MHz up to 5 GHz. All these devices use microwave radiation as a carrier frequency. These signals can be modulated using ELF signals in the range 10 Hz – 300 Hz. The ELF signals span the entirety of our brainwave spectrum.

Mobile phone use has massively increased globally with significant technological developments allowing the use of so-called 'smart' devices. Smartphones are designed to use apps and, in general, it is difficult though not impossible to connect smartphones to a computer. Everyday use means that consumers now use their smartphone as a mobile phone and also to browse the Internet. The smartphone is rapidly changing consumer habits as consumers ditch computers, laptops and landlines, particularly amongst the young. Consumers are also becoming psychologically dependent on a plastic communication device. Social media such as Facebook, Twitter and Instagram use a 'dopamine-hit' mechanism to hook its users. When a sound, ping or vibration alerts the user to an in-coming message, the dopamine centres of the brain get aroused. Over time, habitual responses to that sound act out, automatically. These methods are very similar to Pavlovian conditioning techniques. Dogs were conditioned to salivate at the sound of a sound that signified 'food'. Heavy smartphone users are lapsing towards cyber-realities and robotic life partners.

WIFI router technology has also developed exponentially using two frequencies: 2.4 GHz and 5 GHz. They also function as a mobile phone transmitter in your living room due to their use as 'hotspot' repeaters for anonymous users on the same network. The IOT has spawned a

whole sub-genre of devices that attempt to keep you immersed in digital technology whilst you walk, talk, eat, sleep and socialise. 5G will be the 'nail in the coffin' for many of its unsuspecting users because, in order for 5G to work efficiently, very small yet powerful antenna arrays will be needed within a 25 m radius of each other. Due to their very small wavelength, exposure to these signals will be thermally felt i.e. skin burns will become much more common.

The use of SSSS technology was spectacularly used in the early 1990s Gulf War against Saddam Hussein. Generally speaking, the media is silent on these types of issues but during times of war, the military industrial complex and its media like to brag about the technology they have available or have used. See article below (March 21 1991, ITV News channel) which was not made available to American audiences.


Silent Sound Subliminal Mind Control
1 Steady tone, near the high end of the hearing range, say, 15,000 Hz
4 Output is now more or less a steady tone, souding like tinnitus, but with hypnosis embedded
2 Hypnotist's Voice, varying from, say, 300 Hz to 4,000 Hz
Mic.
FREQUENCY MODULATOR, VOICE CONTROLS FREQ.
5 Brain can hear voice & understand
5 Ear only hears a "tone" or "buzzing/ringing"
Output can be via open air broadcast or piggybacked on TV/radio signals
U.S. Patent 5159703 issued Oct 27, 1992

"an unbelievable and highly classified psy-ops program utilizing 'Silent Sound' techniques was successfully deployed. The opportunity to use this method occurred when Saddam Hussein's military command-and-control system was destroyed. The Iraqi troops were then forced to use commercial FM radio stations to carry encoded commands, which were broadcast on the 100 MHz frequency. The US psy-ops team set up its own portable FM transmitter, utilizing the same frequency, in the deserted city of Al Khafji. This US transmitter overpowered the local Iraqi station. Along with patriotic and religious music, psy-ops transmitted 'vague, confusing and contradictory military orders and information. Subliminally, a much more powerful technology was at work, however. A sophisticated electronic system designed to 'speak' directly to the mind of the listener; to alter and entrain his brainwaves, to manipulate his brain's electroencephalographic (EEG) patterns and thus artificially implant negative emotional states —- feelings of intense fear, anxiety, despair and hopelessness were created in the Iraqi troops. This incredibly effective subliminal system doesn't just tell a person to feel an emotion, it makes them feel it; it implants that emotion in their minds."

Over 200,000 Iraqi Republican Guards and other elite soldiers, mostly battle-hardened, surrendered without a single shot being fired. This same mind control technology warfare can also be used during peacetime to control and pacify its citizens or alternatively, manipulate brainwave activities of police and emergency first responders into being overly aggressive and belligerent.

Fast forward to today and we note smartphone users walking around in a trance ignoring traffic and road signs. One individual in southern England fell off a cliff whilst using his phone. Some cities installed traffic light indicators into the pavement so that phone users do not need to look up before crossing busy roads and the list goes on and on.

In other words, the use of SSSS has the potential to be used in any readily available digital consumer product. Televisions for example, have the capability to induce almost coma-like symptoms in many of its viewers. Police in some situations, over-react to some seemingly everyday events by shooting someone for running a red traffic light. Simply observe any situation involving social protest i.e. abortion, gay rights, civil rights and liberties. Some individuals are 'triggered' for confrontation and they cannot even explain what they are protesting about. None of it makes sense from a psychological or sane society, point of view.

Just around the corner we have the rollout of 5G. By the time this project has finished we will have microwave transmitting antennas every 50 m in all residential and commercial areas – it will be impossible to get away from them. The point of this article is to simply say, individuals using any microwave-enabled devices will be subject to entrainment by these devices. Consumers do not become addicted to any digital product, they become brainwave-entrained. Addiction implies we have the ability of choice, choice to do this or that and even though there is little chance a drug addict says, 'no': there is always that chance. Entrainment of brainwave activities occurs so naturally in an individual they are not even aware of what they are doing; control is that simple.

In order to generate the very heavy urban infrastructure necessary for total societal control, we have been subject to a step by step ramping up of the urban placement of antennas, transmitting equipment and a palpable lack of any meaningful discussion on anything related to our biological safety. Could this technology explain why our young people are socially docile and lack the rebellious spirit that blazed across the world during the Vietnam war? Is it possible that all university campuses the world over have WIFI systems in place that connect users to the Internet and also to a SSSS mind control system? Could this explain why university lecturers appear to be subservient to the system, obey its commands and are busily producing what many outsiders dub the 'snowflake generation'? Certainly, to my way of thinking, I see many educational institutions inspiring students to obey, conform and throttle back on creative and critical thinking. Similarly, is it addiction or entrainment which keeps our precious children hooked to their computer, PlayStation or smartphone for hours on end? Our society appears to be sleepwalking into an Artificial Intelligence-inspired dreamscape in which any form of rebellion is pounced upon as being 'fascist', 'racist' or sexist'. In that type of environment even a critical discussion could be labelled subversive and somehow out of touch with social norms and collective thinking – that begs the question 'who is setting the norms and boundaries of thinking nowadays and what precisely is their agenda?'

The antidote to all of this is very simple – reduce your dependence on all social media microwave-enabled gadgets. Switch your mobile phone off, ignore any text alerts, forget Facebook, twitter, Instagram, sidestep Google when browsing the Internet by using a secure and independent search engine. Get away from as much urban infrastructure as you can, go for walks, meet a friend, go bowling, play football - this is how life used to be before the Digital Age. Become a peaceful warrior-activist by not complying with the dictates of the people and organisations behind the telecoms social control wet-dream. Become much more aware of the gilded cage that has silently been installed around us, break free and be human again".

That article was written in 2018 and in those short years to now, life itself is morphing into strange new cyber-realities. Our social mores, traditions and culture itself is under attack from a piece of plastic everyone thinks is their friend. Many of us cannot even remember how we used to socialise before computers came along. Our behaviours and how we see, treat and interact with each other is also undergoing modification. All of that is related to the simple use of microwave-enabled digital products and services. That in itself is worthy of sociological inquiry and research.

The unknown factor in this issue relates to the nature of magnetism itself. No-one can define nor explain its properties. Exposure to very low level magnetic fields can in some cases cause 'rare' blood cancers.

In the next chapter I discuss Maxwell's Equations and how they were re-interpreted by a Professor Heaviside and a certain Heinrich Hertz, of antenna dipole fame. Word on the street says, Maxwell's Equations on magnetism hold the keys to a fuller explanation of the basis of Life. I then move on to discuss historical controversies between in the red corner, Nikoli Tesla and in the red corner, Professor Heaviside and Heinrich Hertz. Their argument was about the true nature of how signals propagate in the environment. Tesla argued that radio signals propagate through the ground whilst Hertz was of a different opinion. I then move on to flesh out what we understand about EHS (electro-hyper-sensitivity). I close this chapter with a discussion on what appears to be a modern day version of Rachel Carson's Silent Spring. The environmental pollutant is not pesticides, it is microwave radiation.

Chapter 8: Electro-hyper-sensitivity and 'Silent Spring' of our environment

In Bob Becker's book, the 'body electric' he wryly notes in relation to exposure to microwave radiation, "*The Soviet Union and China, partly due to underdevelopment and wartime destruction, and partly by choice, have severely limited its use and the exposure of their civilians.* ***Soviet scientists have consistently assumed that any radiation that doesn't occur in nature will have some effect on life.*** *We've consistently made the opposite assumption.* ***Throughout our recent history American regulators have followed a "dead body policy." They have extended no protection until there was proof of harm sufficient to overcome all deception.*** *There's no longer any question that, as far as electromagnetic energy is concerned, we've been wrong and the Soviets have been right. In the 1950s, Russian doctors conducted extensive clinical exams of thousands of workers who had been exposed to microwaves during the development of radar. Having disclosed serious health problems, these studies weren't swept under the rug. Instead, the USSR set limits of 10 microwatts for workers and military personnel, and 1 microwatt for others.*
Both levels are strictly enforced. When this first became known in the West in the early 1960s, instead of checking their assumptions many American scientists and administrators chose to believe this was Russian propaganda aimed at embarrassing us".

I prefer the Russian precautionary view over the American 'dead corpse' hypothesis. Perhaps we need to re-frame some of our basic questions of life in order to move forward. *Question: What is magnetism? Answer,* not even Einstein could answer this question and it has baffled physicists since its inception. It is here that James Clerk Maxwell enters stage left!

Maxwell was a Scottish mathematician and he was born in 1831 and died in 1879. He formulated what are now known as Maxwell's Equations. These equations provided a mathematical model and general theory of how electromagnetic fields are generated. Maxwell postulated that magnetism and other natural phenomena such as light are of the same stock and differ only in their frequency. Maxwell's Equations have an interesting twist to them. In some circles, it is said that Professor Heaviside and none other than Hertz (of antenna dipole fame), altered the very basis of Maxwell's Equations. The mainstream current understanding of what transpired can be found all over the Internet and I copy this prose below:

"For mathematicians, Heaviside's greatest contribution was in discovering how to simplify 12 of James Clerk Maxwell's 20 field equations with complex calculus expressions, into a much simpler algebraic formulation involving a mere four equations:

$$\varepsilon E = \rho$$
$$\nabla \times E = -\mu \, \partial H / \partial t$$
$$\nabla \cdot \mu H = 0$$
$$\nabla \times H = k E + \varepsilon \, \partial E / \partial t$$

where E represents the electric field, H represents the magnetic field, ε is the permittivity, μ is the permeability, ρ is the charge density, and k is the conductivity.

I suspect only with a gut feeling that the true nature of magnetism defined in the original Maxwell's Equations could lead to inventions such as engine-less craft flight. The source of 'propulsion' could be several magnets in a specific configuration which 'manipulate' the space in the front, back and sides of the craft. I often read articles of UFOs which seemingly disappear in a split second or are able to zig-zag across the skies at amazingly fast speeds.

I first became aware of Professor Heaviside as an environmental scientist because he predicted the existence of an atmospheric layer of the ionosphere called the e region. Before it was known as the e region it was called the Heaviside layer.

Another lesser known story involved Heinrich Rudolf Hertz (he of antenna dipole fame) and Nikoli Tesla. According to Tesla, Hertzian waves do not exist and it is easily possible to show that earth currents are capable of sending power wirelessly around the world with no drop in power. Tesla said that the fading and distortion of radio signals using Hertzian-type antennas offer testament to his poor hypothesis. Tesla also dis-agreed with the notion of a Heaviside region in the ionosphere.

OK what has all this to do with microwave radiation? What all of this says to me is that some of the greatest scientific and mathematical minds of the 19th century produced a general theory of electromagnetism formulated within Maxwell's Equations that were simplified and in doing so, *something* was lost. Tesla's earth current hypothesis for radiofrequency radiation was over-turned by Hertz and Heaviside working together. Overall, these scientific bag-fights have left us with no-one really understanding what magnetism is all about, nor indeed about the true nature of how radio signals propagate. I have built and used dipole antennas for over 25 years and on the plus side, they work well on the lower frequency bands such as the 80m and 40m but subject to all sorts of atmospheric disturbances that result in fading and distortion effects. The two questions I still have are (a) what are the real world implications of Maxwell's original equations and (b) what is the true basis of radiofrequency radiation? I suspect there is some truth to what Tesla says but only for the low frequency bands because VHF and above propagate very differently.

If earth currents are involved, how can power be transferred from one side of the globe to the other with no loss or degradation of signal? Some years back I read that someone simply flipped the coax connections to a monopole so that the driven element was inserted into the ground and an 'earth' wiggled free above ground. They tuned up to several A.M. broadcast stations both local and long distance and tested a traditional Hertz antenna and a Tesla 'ground current' type. From the poor recesses of my memory, I am pretty sure the strongest signals were determined on the Tesla-type antenna. What I am really pointing out here is that even though we think we understand what's going on in terms of radiofrequency radiation and radio wave propagation, perhaps there are other layers to the story. Is there more to antenna theory other than Hertzian by name and Hertzian by nature. I also find it strange that Professor Heaviside re-arranged only twelve out of twenty of Maxwell's Equations, why?

Magnetism, is perhaps the most elusive force on Earth. We understand something about some of its effects but when we drill down to what it is made from, how it really exerts its force(s) it is clear that we have just a basic knowledge of its inner workings. It is fair to say that Modern Science and the best brains of the Universe cannot definitively characterise the 'magic' effect, of magnetism. Lest we forget, we are interested in the safety or otherwise using EMFs (electromagnetic frequencies). If the physicists cannot even tell us what magnetism is, how can they say that radiofrequency radiation is non-ionising? That being so, we must look outside Science to see what others say. If you ask someone who has a spiritual practice i.e. into meditation, has an open mind, a truth-seeker and a believer in "absolutely anything is possible", he/she might describe magnetism in the following way:

We define magnetism as part of the cosmic broth that keeps the universe together and at the same time, mediates its spiritual evolution. As evidence I offer, the Schumann Constant as a meter that records changes in cosmic energies that influence the wax and wane of the energy fields, within, around and above planet Earth. The Schumann Constant can be thought of as a measurable frequency that defines the vibratory signature of plant Earth and it has stood around 7.83 Hz for millennia. From my perspective, what we call magnetism is a force which is mixed in with planetary and individual consciousness. I believe CMEs, (coronal mass ejections), solar flares, space weather and energies outside this solar system, mediate and encapsulate our human consciousness. By consciousness I define our states of consciousness as simply *"being aware of being aware"*. I also believe that consciousness is not the same all over the planet. Some areas appear more 'conscious' than others. Tibet and parts of China have traditionally held loftier views on what we are and what our life purpose is. I also believe that magnetism affects the coding and memories within our DNA, specifically the so-called 'junk' DNA.

The magnetic North Pole is no longer in the Arctic and is currently racing madly over Siberia. The Schumann Constant is no longer at a constant frequency of 7.83 Hz. All these changes within the "magic cradle of Earth" have implications for our consciousness, physical and mental well-being. Robert O. Becker demonstrated that he could alter for the good, physiological processes by exposing the body or organs to specific electromagnetic frequencies. Like any good scientist he was intrigued by cause-effect and naturally, this led to his work on magnetism. Long story short, exposure to EMFs of different frequencies and amplitudes has the power to do good and bad. Bob Becker defined body physiology in the following way,

"the human body is bio-electrical in nature, particularly its nervous system. Many biological responses of the body rely on the transmission of electrical impulses via the nerves etc. In his early biological experiments on how some species are able to re-grow limbs whilst others cannot he said: *"These studies, described in Part 1, led to the discovery of a hitherto unknown aspect of animal life—the existence of electrical currents in parts of the nervous system. This breakthrough in turn led to a better understanding of bone fracture healing, new possibilities for cancer research, and the hope of human regeneration—even of the heart and spinal cord—in the not too distant future, advances that are discussed in Parts 2 and 3. Finally, a knowledge of life's electrical dimension has yielded fundamental insights (considered in Part 4) into pain, healing, growth, consciousness, the nature of life itself, and the dangers of our electromagnetic technology."*

A recording of 158 Hz, December 6, 2019 [^]

What this means is quite simple. The magnetics of the Earth itself, the position of the magnetic pole, the Schumann Constant are all indicators of complex inter-laced, cosmic and magnetic forces which are largely outside our control and scientific understanding. These energies

influence our body-psyche both positively and negatively. That is why and with hand on heart, I cannot say that the telecommunication industries and their patrons are totally to blame for the sleuth of adverse biological effects that present themselves around the world on a daily basis.

I further argue that as the magnetics of the planet change, so does our consciousness. Some will experience a spiritual awakening, whilst others will furiously swim against the tide. The young will experience or be born into a state of being where they are identified by their parents as savants. They have a message for the world, but their consciousness is not here, it is elsewhere. In other words, some young people are mis-diagnosed as having mental health problems yet nothing is further from the truth. In reality, many of these youngsters are savants, particularly those born within the past 15 years or so.

Bob Becker was very clear on a lot of this way back in the 1980s. He essentially argued that psychics and extra sensory perception simply means a person with those abilities have slightly different frequencies to the average Joe. The magnetics mediate the frequency of our 'consciousness'. It does not make that person special, just different. You might think this is all wishful thinking and spiritual woo-woo yet for the past 80 years at least, the militaries of the USA and former USSR have carried out huge amounts of experiments on these issues. Lest you think I am a tree-hugging, sandal wearing so and so (which I am), simply search the Internet for US or Russian 'remote -viewing' projects such as "*stargate*" – you might be gob-smacked! This is what wikipedia says about these projects

"**Stargate Project** was a secret U.S. Army unit established in 1978 at Fort Meade, Maryland, by the Defense Intelligence Agency (DIA) and SRI International (a California contractor) to investigate the potential for psychic phenomena in military and domestic intelligence applications. The Project, and its precursors and sister projects, originally went by various code names – 'Gondola Wish', 'Stargate', 'Grill Flame', 'Center Lane', 'Project CF', 'Sun Streak', 'Scangate' – until 1991 when they were consolidated and rechristened as "Stargate Project".

Stargate Project's work primarily involved remote viewing, the purported ability to psychically "see" events, sites, or information from a great distance.[1] The project was overseen until 1987 by Lt. Frederick Holmes "Skip" Atwater, an aide and "psychic headhunter" to Maj. Gen. Albert Stubblebine, and later president of the Monroe Institute.[2] The unit was small scale, comprising about 15 to 20 individuals, and was run out of "an old, leaky wooden barracks".[3]

The Stargate Project was terminated and declassified in 1995 after a CIA report concluded that it was never useful in any intelligence operation. Information provided by the program was vague and included irrelevant and erroneous data, and there were suspicions of inter-judge reliability.[4]:5–4 The program was featured in the 2004 book and 2009 film, both titled *The Men Who Stare at Goats*,[5][6][7][8] although neither mentions it by name

Time to go back to Earth and discuss matters of EHS.

What is EHS

EHS ZONE REFUGE
WELCOME - BIENVENUE
HEALTH ZONE
ZONE SANTE
Avoir la 3G est un choix, être
24h sur 24 par les CEM de la 3G ne l'est pas !

The image above is a group of women who are required to wear aluminium mesh cloths around their body. The cloths act as a Faraday Cage. A Faraday Cage is a device that blocks or reduces electromagnetic frequencies from getting inside the cage. Generally speaking, a mesh size of just under 2mm is a good compromise for the frequencies used by mobile phone transmit antennas. The interesting fact about Faraday Cages is their inability to screen magnetic fields. A cage will offer protection against fast-moving RF/R (radiofrequency radiation) yet slower moving magnetic fields are not as affected. The Earth itself has its associated magnetic field and I guess the inability of Faraday Cages to stop natural magnetic fields is a good thing. Interestingly, astronauts and cosmonauts cannot exist for too long outside the magnetic fields of plant Earth because they get sick.

There are several sites around the world where EHS sufferers live without threat from microwave radiation. The one above is located in France and there is another one close to a radio astronomy site in Arizona, USA. The other interesting observation about those who suffer from EHS is that they are also affected by weak electromagnetic waves. If the washing machine is on, the kettle boiling or an incandescent light bulb burning, their bodies react to it. From this perspective you could argue that they are allergic to the 21st century! They suffer many different ailments of dis-comfort including burning as currents run up and down their body, nausea, headaches, confusion and much more. It is a set of feelings they have to get away from. If you answer a call on your mobile in front of an EHS sufferer, they will quickly try and make their escape as quickly as possible by putting as much distance between them and that mobile phone.

Lest we forget, the Russians defined this condition way back in the 1930s and they called it ‘microwave sickness’. Unfortunately, those who suffer from EHS are ‘the canaries in the coalmine’. They feel these effects first and it simply says, exposure to microwave radiation is toxic to health, not just to us but to birds, insects and animals.

This article is hot off the press and its conclusions more or less confirm what Bob Becker noted many years ago. The article was published in Environmental Research, **212**, (2022) 113374:

Why electrohypersensitivity and related symptoms are caused by non-ionizing man-made electromagnetic fields: An overview and medical assessment, Dominique Belpomme a,b,*, Philippe Irigaray Medical Oncology Department, Paris University, Paris, France, European Cancer and Environment Research Institute (ECERI), Brussels, Belgium

"Abstract:

Much of the controversy over the cause of electrohypersensitivity (EHS) lies in the absence of recognized clinical and biological criteria for a widely accepted diagnosis. However, there are presently sufficient data for EHS to be acknowledged as a distinctly well-defined and objectively characterized neurologic pathological disorder. Because we have shown that 1) EHS is frequently associated with multiple chemical sensitivity (MCS) in EHS patients, and 2) that both individualized disorders share a common pathophysiological mechanism for symptom occurrence; it appears that EHS and MCS can be identified as a unique neurologic syndrome, regardless their causal origin.

In this overview we distinguish the etiology of EHS itself from the environmental causes that trigger pathophysiological changes and clinical symptoms after EHS has occurred. Contrary to present scientifically unfounded claims, we indubitably refute the hypothesis of a nocebo effect to explain the genesis of EHS and its presentation. We as well refute the erroneous concept that EHS could be reduced to a vague and unproven "functional impairment". To the contrary, we show here there are objective pathophysiological changes and health effects induced by electromagnetic field (EMF) exposure in EHS patients and most of all in healthy subjects, meaning that excessive non-thermal anthropogenic EMFs are strongly noxious for health. In this overview and medical assessment we focus on the effects of extremely low frequencies, wireless communications radiofrequencies and microwaves EMF.

We discuss how to better define and characterize EHS. Taken into consideration the WHO proposed causality criteria, we show that EHS is in fact causally associated with increased exposure to man-made EMF, and in some cases to marketed environmental chemicals. We therefore appeal to all governments and international health institutions, particularly the WHO, to urgently consider the growing EHS-associated pandemic plague, and to acknowledge EHS as a mainly new real EMF causally-related".

Imagine what it feels like if you are forced to flee for your life from an environmental pollutant that everyone around you has no idea exists? If you know nothing about EHS but have the symptoms, you might think there is something drastically wrong with you. How would you describe it to friends and family members? An EHS sufferer cannot convince everyone to drop their digital products because that would be even more tiring and frustrating. Imagine what it is like living inside a Faraday Cage when you go to sleep and what do you think about when you wake up?

Caravan functioning as a Faraday Cage

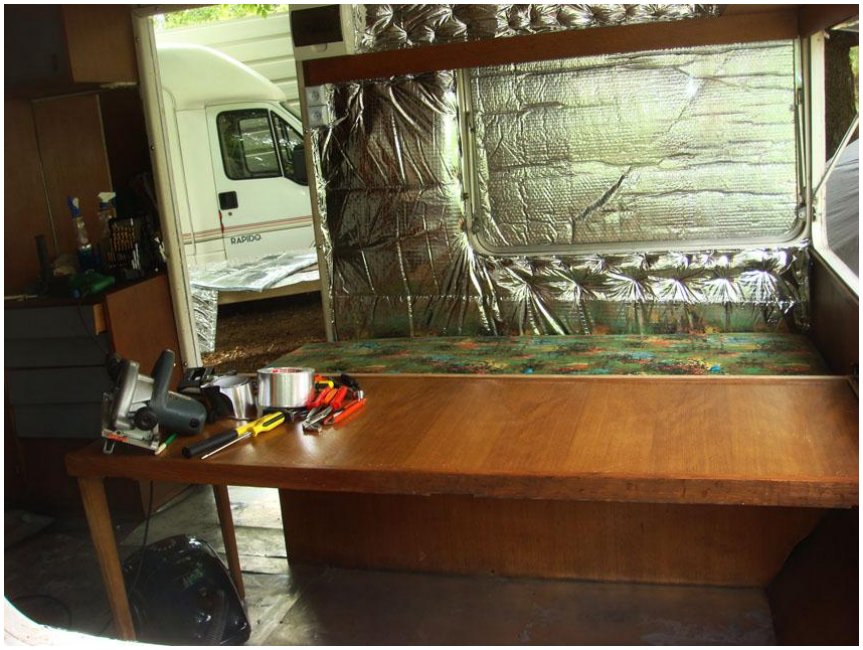
What appear to be aluminium panels probably bonded with an EMF substance to decrease any EMFs in this area. That is a full enclosure including the body of the caravan. No windows to simply look out and admire the view.

Sleeping quarters

The inside of the caravan sleeping quarters are completely Faraday caged with walls, ceilings and floor isolated against ingress of EMFs.

Kitchen and bathroom

Dining area



Imagine what it must be like to do everything you have ever done differently? Imagine living in a place that is miles away from anywhere in the knowing that you cannot go back to the places you grew up in, friends lost and memories ignored or forgotten?

EHS Refuge Zone
Health Zone Open Zone (free)
EHS International Centre for Study and Contact
(Operational spring 2010)
- EHS general contact: ehs@ehs-refuge-zone.eu
- EHS personnal contact: ehs-mail@ehs-refuge-zone.eu
- EHS management: contact@ehs-refuge-zone.eu
- EHS press service: infos@ehs-refuge-zone.eu

Is EHS a recognised medical condition?

Not many countries in the world recognise EHS as a treatable medical disease. The Nordic countries (Norway, Finland, Sweden and Denmark) do recognise EHS and patients diagnosed with this debilitating affliction will be helped in reducing their exposure to these signals. Depending on the severity of their EHS, these individuals may be moved to areas of the country where microwave gadgets are banned and/or to low signal areas. Others may opt for staying indoors for most of the time and their walls, windows and doors are made less EMF-impermeable. Special curtains, nets and paints can be used to lessen the signal intensity from microwave radiation.

It should be noted that although only a handful of countries presently recognise EHS as a disease, a number of countries (including countries in Europe, Canada and the former Soviet Union) have been aware of it since the 1930's. In those days, EHS was known under a variety of names, such as microwave sickness, Radio Wave Syndrome, EMF Intolerance Syndrome and Rapid Aging Syndrome.

Most, if not all, of the global population of the world is, to some degree, **electro-sensitive (ES)**. It is a slowly emerging fact that exposure to microwave radiation has adverse biological consequences for our health. However, most of us do not appear to display or suffer adverse body effects until some 5 - 20 years of continual exposure. If your sleep pattern is suddenly disrupted and you do not know why, would you suspect that radiation from your modem router which you grew up with is to blame?

Whichever way we look at the current situation, the use of microwave-enabled products and gadgets has mushroomed of late with alarming consequences on our general health. The human body has not had sufficient time to evolve in response to the electrosmog world we live in. Additionally, we have now approached a situation in which almost everyone is exposed to saturation levels of microwave radiation on a daily basis.

Personal symptoms documented by EHS sufferer: http://www.norad4u.com/ehs/ehs-symptoms

"heat sensation, redness in the face, rush of blood to the head, pressure on the head temples, pressure in the inside of the ears, light headache, feeling incoming calls as a sharp pain in the head and eyes, restlessness, concentration problems, pressure headaches on the side and back of the head, tingling sensations, severe headache, memory problems, depression, ringing in the ears and noises in the headaches, depression anxiety, difficulty concentrating, difficulty finding words, episodic hypertension, eye inflammation, fatigue, forgetfulness, frequent infections, heart palpitations, hormonal disturbance, impaired balance, irritability, joint and limb pain, learning difficulties, loss of appetite, lymph node swelling, nausea, nerve and soft tissue pain, night sweats, numbness or tingling, restlessness,, skin complaints, sleep disturbance, thyroid problems, tinnitus and visual disturbance"

A recently diagnosed EHS sufferer wrote *'...medical doctors knew 80 years ago what corporations and governments are still trying to deny today – that human biology reacts to long-term, non-thermal exposures of microwave radiation well below the "government guidelines" that are supposed to protect humanity. Between 3% and 10% of the general population now experience one or more EHS symptoms when exposed to microwave radiation or electrical pollution (some estimates go as high as 30% of the population)".*

Some people react severely and become as detailed previously, EMF Refugees. Whichever way we cut the cake, 100% of the population will at some stage be affected biologically by EMF pollution. However, like smoking or asbestos, we continue to play Russian Roulette with our lives.

In 2017 I attended an EMF conference in Wiltshire, Southern England and it was very sad to observe the mind-set of typical EHS sufferers. Many of these individuals walk around with EMF detector meters and have to be absolutely sure they are not going into an area where microwave signals are present. They have to be careful speaking to people, just in case that person suddenly whips out their mobile phones. They have become prisoners of electrosmog, yet the British Government does not even recognise EHS as a medical condition. Much of what I saw at the EHS conference was due to the conspiracy of silence around these issues.

Fast forward to 2022 and the veil of silence around biological harm from exposure to microwave radiation is beginning to crack. There has been an amazing amount of peer reviewed scientific articles on issues of EHS and its causes of late. Check this link for the latest review: https://www.sciencedirect.com/science/article/pii/S0013935122007010

The odd nugget of good news on anything related to exposure to microwave radiation is always welcome. Look what happened here: PHIRE (Physicians Initiative for Radiation & Environment). Their website is here: https://phiremedical.org/

"59 year old social worker wins 'early ill health retirement' for disabling 'Electromagnetic Hypersensitivity (EHS):

"I have worked in Health and Social Care for 35 years, supporting some of the most disabled and vulnerable members of our society and advocating to ensure their rights have been upheld. To have been on the receiving end of societal prejudice, discrimination, ignorance and misunderstanding, has been devastating", says the 59 year old social worker, Sally Burns.

Mrs Burns is sensitive to non-ionising radiation (NIR) such as Wi-Fi and mobile phone emissions. She experiences dizziness, headaches, palpitations, sleep disturbance, vibrating sensations and sensitivity to noise and light. She feels pain in body areas which are most proximal to the radiation sources, such as heat and pain at the ear from mobile phone use and abdominal pain from computer use. Her reaction is severe enough to have caused her to have to avoid using mobile phones and computers and even to try to avoid public exposures such as phone masts and pubic Wi-Fi / phone emissions. You can imagine how disabling that is within a society that has become so dependent upon use of these technologies in all areas of public life. She is disabled by electromagnetic hypersensitivity (EHS).

Sally's professional life has been prematurely ended by growing dependence upon radiofrequency radiation (RFR) in the workplace: "My work has been important to me, I hoped to be able to work well past retirement age, not to go early".

In relation to EHS, the Independent Registered Medical Practitioner (IRMP) report concludes: "Mrs. Burns has a medical condition that renders her permanently incapable of undertaking any gainful work. There currently are no treatments available for her condition; avoidance of emissions is the only way to significantly reduce her symptoms."

Whilst such emissions were historically presumed to be biologically inert, and are still purported to be safe by many to this day, there is now highly credible evidence to the contrary."

I now switch focus to environmental concerns especially around issues of bee colony collapse disorder, but first, a bit of context. The environment has been at the brunt end of Industry well before I was born. Every aspect of Industry's interaction with nature is brutish, relentless and un-forgiving. Across much of England's green and pleasant land, traditional family farming has given way to 'Big-Agriculture'. The farming industry use large amounts of pesticides, fertilisers, massive machines and hellish animal welfare practices. Loss of habitat for birds, animals and insects has been going on for years as small farms are swallowed up by big multi-nationals. In their merger and wake, we see hedges, hedge-rows and trees cut down to make way for the super-sized tractors and combine harvesters. The soils are extensively used 2 – 3 time each growing season for crops. The concept of leaving land 'fallow' to recuperate is a distant memory of how farming was done back in the day!

I have long held the view that the indiscriminate use of pesticides, particularly a class known as neonicotinoids is one of the greatest crimes Industry has committed against the natural environment and mankind. For whatever reason, Industry act as if the environment is their own back-yard and adopt a policy of smash and grab. They take, take, take, put nothing back and move onto the next bit of fertile soil. This is what happened in the early 1980s in many South American countries that produced beef for the big European fast food chains. The same situation occurs in many African countries. In order to pay back international loans, many African countries grow animal feed for export to Western countries. These feeds could help feed their own population but such are the truths behind many aspects of Western 'foreign aid programmes'.

Under a lack of a rigorous environmental stewardship, soils bear the brunt of this intensive onslaught because Big Agricultural Producers attempt to extend the growing seasons and

extract as much produce as possible by use of fertilisers, pesticides and automated machines. As a result, soils globally are losing their mojo because of bad agro-farming practices and if we are not careful, Industry will leave our once fertile soils, as barren as the dust-bowls of America. Once the soils are depleted of nutrients and are unable to produce fruits and vegetables, Industry will simply move onto the next patch of land or grow the next 'big thing'. In doing so, they leave in their wake, dust.

If we look at the natural environment as a whole, the pollution from oil fields and coal/diamond/precious metals mining leaves a devastating trail of environmental pollution and Industry get away with it, year after year. Pollution from nuclear and coal-fired power stations have rained on our lands for many years. Our rivers and streams are seen as nothing more than a convenient method to 'dilute and disperse' industrial wastes including human sewage. The land itself, particularly in urban conurbations is covered in concrete and street furniture. Light pollution from council lamps and industrial-sized blocks in the centre of cities has re-set many diurnal and circadian rhythms of man, beast, plant and insect. The list goes on but in all of this and particularly within the 10 years or so, governments and industry stay *largely silent* on the plight and disappearance of insects.

As outlined above, there are many, many reasons why insect species and numbers are dwindling across the land. That has been going on for well over 100 years and is well documented in academic journals across the globe. Pesticides in particular have decimated insect populations simply because so many of these pesticides are broad-spectrum insect killing machines. In spite of all the above, we could still see sparrows in our bushes, wasps, bees, butterflies and all manner of creepy crawlies. Not anymore, we are now witness to hot muggy days with few insects buzzing around annoying the hell out of us.

Over the past 10 – 15 years, many ordinary people have noticed and commented on the disappearing insect populations. I remember as a young man jumping into my Ford Cortina 1600E and travelling between London and Liverpool. Even before reaching halfway into my journey I had to pull into a service station to wipe all the dead insects off my windscreen and front lights. That does not happen anymore and we are currently in a Rachel Carson, Silent Spring moment – we need to find out why. Insects and birds, particularly bees and sparrows are in massive decline. Today is 6 July 2022 and for the past three years I eerily notice less and less insect activity around where I live. Conspicuous by their absence in many urban jungles are much smaller numbers of bees, sparrows, butterflies and even the common or garden house fly.

Insects are near the bottom of the food pyramid. The insect trophic level provide sustenance for the one above, birds. If the insect population is crashing, all upper trophic level species will die out resulting in loud echoes of what Rachel Carlson wrote about in her book, Silent Spring. What environmental pollutant is causing these population crashes, because it is occurring across the globe? Many factors have been touted for declining insect populations and primary suspects are pesticides, habitat loss and the shifting magnetic North Pole. Few academics **mention microwave radiation as a possible cause of insect decline, particularly in relation to bee colony collapse disorder.**

The ICNIRP's 'silent spring' conundrum

The natural world of grasses, plants, trees, animals and insects share similar ancestry to us in relation to electrical signalling of many cellular functions. If the internal structures of plants, animals and insects are over-loaded by radiofrequency radiation, their biology and/or cellular signalling may break down or become erratic. The easiest way to visualise what is going on is to understand that mankind, plants, animals and anything capable of respiration is bio-electrical in nature. Our natural environment is also awash with negative and positive electrical charges. These fields might be stationary or flow as rivers on the ground and above our heads. We also have inputs of cosmic charged particles of all types, static electrical fields and magnetic fluxes all swirling around and differentiated in potential by charge and altitude. It is indeed a complex mix of all sorts of forces[(20)]. That is the biotic and abiotic world we live in and it is multi-layered and inter-dependent. In order to be brief and to simplify a very complex set of inter-related variable I exemplify the current relationship between Industry and nature with the well-documented decline of the pollinating insect, *Apis mellifera*, the honey bee, found in western climes.

Bee Colony Collapse Disorder

Colony Collapse Disorder (CCD) is what it says on the tin. Bees fail to return to their hives and the queen-bee is left with eggs and immature worker bees. Subsequently, the hives die off. Bees are pollinating insects and if bee numbers plummet, food production levels will decrease. If bees are affected so will other insects having similar taxonomy. We notice what happens to bees because they produce honey, wax, medicinal and other commercial products. It is more difficult to spot slow or rapid declines in other insect populations simply because they are seen as aesthetic and not commercial. Some 30 years ago, an organisation in the UK had a project in which insect species numbers were collated year on year. The insects were caught in nets which sat over the top of green towers about 50 cm wide and about 12 m high. I am not sure who they are and whether they still collect these data but it would be interesting to have a look

at past collection campaigns and compare them to what we are finding now. Perhaps it was an academic project or maybe a government-funded long term research project?

Bees have been around for a long time and evolved all sorts of defences against mites, pests and other bugs. Bees are a wonder of nature. I use a medicinal product of bees called Propolis on the odd occasion I have an abscess or tooth infection. I do not use over the counter products, nor antibiotic-prescribed drugs nor run off to the dentist.

Clearly, animals and insects that have been around for millions of years, evolve a robust biological armoury against all sorts of threats. Colony Collapse Disorder is something novel because of the symptoms of CCD. The striking feature of CCD is the bees do not make it back home, despite their built in homing devices. I looked at the literature on CCD and in 2022 and the number of papers show it is of mounting concern. A lot of the literature says there are several variables that might explain CCD. One peer review paper published in 2021 say CCD occurred in N. America in 2006 and is not found anywhere else. In general, there is a lot of good, indifferent and what I call 'noise' science. Noise science is carried out in such a way that the significance of several key factors get lost in the making of the pie i.e. intentional smoke and mirrors.

To see the wood and the trees I looked around for a scientific study from a country where apiology is an important commercial product yet a country which still holds true to the old values of husbandry. I also wanted a study carried out in the early days of mobile phone telephony and finally, a study not funded by government nor the telecommunications industries. I could not find the ultimate study, one in which vast areas of the bee hive are surrounded by organically farmed soils with no pesticides nor spray drift present.

Sainudeen et al (2011)[21] of Kerala, India carried out a study on the effects of microwave radiation on a set of bee hives using a control group. In his introduction he says:

"Bees and other insects have survived and evolved complex immune system on this planet over a span of millions of years. It is not logical that they would now suddenly die out now due to diseases and natural parasites. This suggests another factor has been introduced to their environment that disrupts their immune system. This man made factor is the mobile towers and mobile phones.

The public is not being informed of the threat due to deliberate attempts on the part of mobile phone makers to mask the direct causal relationship. Over the past several months a cadre of scientists, funded by the deep pockets of the mobile phone industry, has suggested viruses, bacteria, and pesticides are to blame for the unprecedented honey bee decline. Rather than critically assessing the problem, the industry is dealing with it as a political and public relation problems thus manipulating perception of the appropriate remedy. Sadly, this deceptive practice is business as usual for the mobile phone industry.

Materials and Methods
Six colonies of honeybees (Apis mellifera) were selected. Three colonies were selected as test colonies (T1,T2 & T3) and the rest were as control (C1,C2&C3). The test colonies were provided with mobile phones in working conditions with frequency of 900 MHz for 10 minutes for a short period of ten days. EMF (Electromotive field) power density was measured with the help of RF Power density meter. The control colonies had not provided with mobile phones. Queen prolificacy was calculated in terms of egg laying rate of the queen 1 . Flight activity and returning ability were measured as number of worker bees leaving and returning respectively to the hives per minute: before exposure, during exposure and after exposure.

Results
The results of the studies are presented in Table. The present study showed that after ten days the worker bees never returned hives in the test colonies. The massive amount of radiation produced by mobile phones and towers is actually frying the navigational skills of the honey bees and preventing them from returning back to their hives.

It was shown that the total bee strength was significantly higher in the control colonies being nine comb frames as compared to one in the test colony at the end of the experiment. The thriving hives suddenly left with only queens, eggs and hive bound immature worker bees. The queens in the test colonies produced fewer eggs/day (100) compared to the control (350). It has previously been reported that there is low egg laying rate in queens exposed to high voltage transmission lines or exposure of the queen bees to cell phone radiation stimulated her to produce only drones. Thus electromagnetic radiation (EMR) exposure provides a better explanation for Colony Collapse Disorder (CCD) than other theories. The path of CCD in India has followed the rapid development of cell phone towers and cell phones, which cause atmospheric electromagnetic radiation.

I find the last sentence of this report interesting because they say, CCD follows in the wake and installation of mobile phone towers, masts and use of mobile phones. This is useful information to those who want to investigate this issues themselves as a 'paper' study. Simply look for the earliest work on CCD in your area and correlate that with the dates Big-Telecom rolled into your area with their mobile telephony infrastructure. Failing that, at least you understand there are links between CCD and mobile phone technologies. The second clue lies in the fact that bees have homing devices and if this homing device is blocked and cancelled out by strong EMF fields, a plausible explanation for the bees not returning home and consequent initiation of CCD appears more cause-effect than associative.

What I am trying to say is that the questions posed of any research is so much more important than the research itself. The famous Philosopher of Science, Thomas Kuhn said, "the answers you get depend on the questions you ask".

I give an example of what I call self-referencing, 'dead-end' science. You are the head of a government regulatory department in charge of licensing pesticide products. Every time a pesticide product is marketed, it must first provide a dossier of toxicological safety for expert consideration in European Union Standing Committees It is your job to ensure the dossier provided by Industry answer all the questions of safety and toxicity because it is *you* who has to stand up and present it to other member states for authorisation purposes. You have worked with this pesticide company on numerous other pesticide products and over the years have built up a good working relation.
Your department also has a big annual research budget and colleagues in the Nutrition department have an up-coming research project checking nutritional data on certain foods. This provides the perfect research platform to ask *"are there any nutritional differences between organically produced foods versus foods grown with pesticides"*? You launch the research procurement process and your department gives the nod to an analytical laboratory part-owned by that same pesticides company whose dossiers you are very familiar with.

The establishment that carries out this work is absolutely outstanding in terms of quality and status within the analytical scientific community. They produce such a good project that everyone claps their hand and it is published and cited widely within the food sciences community.
The conclusions of the research project clearly there were no differences in nutritional status between organically grown versus pesticide grown vegetable produce. Job well done? The pesticides company would say, "it is nice to confirm to consumers that what we have been saying for years that foods grown with the help of pesticides have the same nutritional benefit as organically produced foods is now scientifically validated". The government regulator is also happy because the study shows her department is doing its job well, because the research work has been well received by all in the food industry and the research also garnered lots of TV and radio attention. Everyone a winner? No.

Any first year undergraduate student would tell you that it is unlikely you would find any differences in nutritional values using standard procedures. The point of all this is to simply say, scientific research is only useful, if it asks the right questions. Surely, with all the controversy behind the use of pesticides, the government should be asking Industry some very basic questions – is it safe for me and my kids to eat fruits and vegetables laced with 43 different pesticides for the rest of our lives. An ancillary question would be: what about the 'cocktail effect' from consuming so many different pesticides, are toxicological end effects enhanced?

The answers you get depends on the questions you ask! The same type of 'dead-end' science is replete within the world of mobile phone telephony. Science would be science if we ponder more on what questions to ask, scrutinise who is funding whom and having a good look behind the motives of journal editors and their editorial boards as to why they publish this and not that type of research. Unfortunately, a lot of scientific publishing houses end up being the final arbiters of scientific truth, particularly in mainstream journalism. If journal editors of a specific scientific discipline have a particular bias, what is produced is no longer Science, it is simply an Industry-financed information pack.
Real life, however is fighting back on what is really going on. A farmer in France noted that since installation of mobile phone towers 200 m from his fields, the milk production of his herd dropped by up to 20%. Secondly, out of a herd of 200 cows, 40 had died. Yep, 20% of his herd died.

"The administrative court in Clermont-Ferrand (Auvergne-Rhône-Alpes) ordered the switch-off after Frédéric Salgues, a farmer in Haute-Loire, said he suspected that it was damaging his herd's health. The court said that "it is appropriate to order the temporary cessation of the operation of this antenna for a period of two months, taking into account its general impact, with monitoring, by the judicial expert, of the behaviour of the herd, and of the dairy cows in particular, during this period".

Operator Orange now has three months to act in accordance with the ruling, including stopping the antenna's operation while ensuring phone coverage, including emergency calls, for Orange users in the area affected.
https://www.connexionfrance.com/article/French-news/French-court-orders-4G-antenna-switch-off-over-cow-health-concerns

I trust this case will serve as a legal precedent that telecom companies provide basic safety data with each application for a mobile phone mast installation, especially when sited in or close to schools and hospitals.

In closing this chapter, today is 26 June 2022. I have a magnificent Himalayan Honey Tree Bush in my front garden and it attracts bees like a magnet. Last year it was visited by bees, wasps and other insects. This year, I have not seen a single bee or wasp visit our tree. Maybe it is a bit too early in the season, maybe the season is too wet and perhaps it's too dry. I can ask myself these sorts of questions all day. Yet, I know despite proof from mainstream peer review scientific literature that exposure to microwave radiation from the telecoms machinations of the 3 trickster monkeys is to blame.

Did you pick up on what I implied in that last sentence? Read it again before reading further. I said "despite proof from mainstream peer review scientific literature." Perhaps this is a topic for another day but back in the day, Francis Bacon, Descartes built on the wisdom from the Greek philosopher, Aristotle to introduce within society, the *Scientific Method.* They formalised an *objective* means to investigate the natural world. It has been tweaked a few times since with concepts and problems of inductive and deductive methods of inquiry. Nonetheless,

the basic method still exists. Science is built on its ability to tear itself apart, in other words, it is adversarial. Within the Scientific Method we have an in-built arena of debate, discussion and discourse. Science is all about falsification of your hypothesis and that hypothesis having the most explanatory power of that under study. If that hypothesis is reproducible in other labs and environments across the world it can attain scientific theory, just like Maxwell and Einstein

Big Science equals 'cancel culture'

That is how Science is supposed to work but today, the Scientific Method is a victim of 'cancel culture'. If you do not like what is being said you simply ignore, dismiss or 'diss' the protagonists which effectively de-platforms those pesky non-thermal adverse biological effects advocates. Science today is biased and this fully explains why the IPCC stated in their 2001 climate report that *"97% of climate scientists agree that carbon dioxide is blah, blah, blah"*. Regardless of what the IPCC state and its many echoes since via the BBC and its 'chattering classes', Science is not a *Consensus* vocation, it never has and never will be unless, you are biasedly pushing an agenda. That is precisely where the ICNIRP and its government patrons are now and have been since Day One. Big Science biasedly controls the narrative and the 'alternative' Real Science' is finding it difficult to get its voice heard. When Science falls victim to falsehood, so does society.

In the following chapter, I broaden slightly the scope of this book to dip into past EMF controversies around the issues of 'dirty electricity'. The story of 'dirty electricity' has echoes of what is happening in relation to microwave radiation. Our biology is adversely affected by exposure to 'dirty electricity'. Regardless of the name attached to dirty electricity it is of the same vintage as microwave radiation i.e. both are forms of radiofrequency radiation, both have electromagnetic fields and both are capable of inducing cancer. The same actors involved in our current digital woes are exactly the same villains involved in the regulation of dirty electricity. The first piece of legislation introduced by the UK parliament was called the 'electricity supply act' of 1919. Barely thirty years after introducing electrical power into homes, incidences of leukaemia and other health-related problems followed in its wake. In spite of that, societal and industrial demands howled out for more and more electricity. This is yet, another example of an industrial pollutant which governments and its health regulators played down because it has that special tag, 'social good'.

Chapter 9: Dirty electricity and its causes

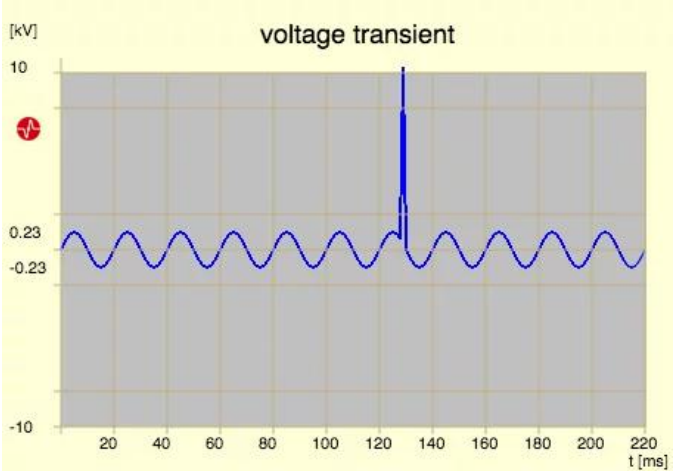
Once again, I stand on the shoulder of a giant, Sam Milham. I like his practical style of taking measurements and his scientific and investigative zeal. The study of dirty electricity is tricky because no-one really thinks about the potential hazards and dangers that may occur, simply switching on a light bulb or phone charger. His website can be found here:

http://www.sammilham.com/links.shtm

What is dirty electricity?

Dirty electricity is quite simply, pollution. There are two different sources of dirty electricity types and I describe each in turn. I focus on (a) residential electricity and (b) transmission of electricity using thick metal cables and pylons. Residential houses use 240v with an alternating current (AC) that changes direction 50 times per second i.e. 240v at 50 Hz. Power generation companies define dirty electricity as the electricity supply contaminated with or laced with voltage transients. A voltage transient manifests itself as an increase of voltage above 240v with a corresponding increase in current load. The image below shows a stable voltage supply until we reach 130 milliseconds and that 'spike' or jump in voltage is a voltage transient or dirty electricity.

Example of a one event voltage transient



Each time we switch on an electrical gadget in the house, we increase the potential for the dirty electricity aka voltage transients that are carried on the surface skin of mains household wiring. Much depends on the design of the consumer product and whether or not that item is suitably filtered. Worst offenders in generating dirty electricity are items which interrupt the power supply itself in order to work. Consumer products such as switch mode power supplies, plasma and LED TV and 12v LED lights by dint of their design generate copious amounts of voltage transients. Switch mode power supplies, especially those produced in China have zero filters inside them. In fact, almost every household item that needs a step down in voltage i.e. from 240v to 12v, 6v or 3v may cause problems of 'dirty electricity'. Using several items that induce spikes of dirty electricity on a daily basis for the rest of your life is not a good scenario to consider in terms of safety and well-being.

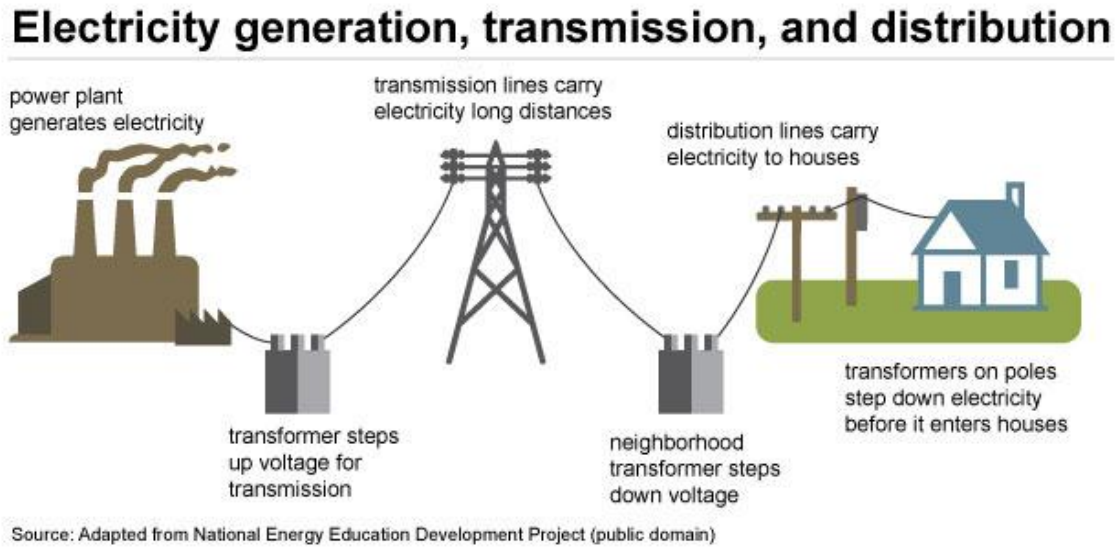
As with radiofrequency radiation, when electrons in electricity move within a circuit, a magnetic field is also produced. This EM field will also have current associated with it and all of these transients travel throughout the wiring of the house and also radiate outwards as EMR, (electromagnetic radiation) from the household wiring.

The biological effects of dirty electricity are a forerunner of what we are experiencing now since using mobile phone technologies. What we have is a social good i.e. electricity that powers our homes, consequently, societies cannot live without it and over a period of time, adverse biological effects appear. Generally speaking, when a new technology is rolled out no one looks for anything other than the benefits that technology brings to the table. Clearly, absence of harm equals nothing to see, move along please. Inevitably, however, the use of those technologies through time enable a catalogue of adverse biological effects that may or not be recorded in the annals of medical establishments. Sporadic incidences of biological harm go un-noticed or they might be mis-diagnosed through time and space. It is not until unusual incidences of a rare disease become more widespread that regulators, academics and industry become concerned. We, the general public tend not to hear much of what is happening until cluster cases are found and identified. 'The cluster cases signify that an environmental pollutant is present and its cause must be investigated. This becomes problematic for the public because government define what the likely causes might be. That is where the experts in epidemiology step up to the plate and they assess likely culprits. This stage is crucial in finding out what is going on because you might miss the new technological or substance kid on the block. Does all this sound familiar?

When cancer clusters occur in communities that previously had few or 'background incidence' cases, all avenues of scientific investigation must be pursued to find out what is responsible. If the evidence for cause-effect is not there or controversial, the precautionary principle must be used based on the best available scientific evidence. Early evidence of clusters of leukaemia show that if you live close to electrical power substations, electricity pylons or cables carrying electricity, your chances of getting cancer increase. Cancer clusters may be present in occupational exposure settings, whilst electricity is transported from the generating plant to a neighbourhood sub-station and crucially, in residential homes, offices and workplaces. In order to find out what is going on we can look at the various stages of electrical generation from generating plant to residential homes and identify probable causes of adverse biological effects along the way.

Significantly, because we are talking about the generation, transport and conversion of high to low electrical voltages, we must also include all sources of power generation including wind, wave, solar and geothermal. Dirty electricity is present in all these systems due to the inherent nature of electricity inducing *electromagnetism* into and close to our biology. That great unknown, *magnetism* is present in all these things which simply means we must treat any source of this type, regardless of its functionality with precautionary measures.

Electricity is generated from primary and secondary systems. Primary plants include nuclear fuelled and coal-fired power plants. Secondary or renewable sources includes, geothermal, wind, wave and solar panels.



Cheap as chips microwave radiation and dirty electricity detector

Before I go any further in this discussion I want to discuss a very cheap electrosmog, microwave radiation and dirty electricity tester that may cost you just pennies. Look around and buy a cheap, small transistor radio that has A.M. (amplitude modulation) and F.M. (frequency modulation). A radio by design is a receiver of electromagnetic frequencies.

You can easily turn your radio into an EMF detector by switching your radio to A.M. and dial in a frequency around 1600 kHz. You are looking for a bit of background static with no music present. Turn the volume up so it is not too quiet or not too loud. Find your local mobile phone mast antenna and walk up to it from a distance of 350 m. As you approach the mast, a whole bunch of noises can be heard in the radio speaker which becomes louder and louder, the closer you get to the mast. When you are about 100 m from the mast, the noise from the speaker will be deafening and you may need to turn the volume down. Congratulations, you have successfully tracked down a microwave radiation signal with an item costing pennies and is probably about 40 years old! You can do the same to your Wi-Fi router if you don't fancy going outside.

A radio has what is known as a 'front end' and it is sufficiently 'wide' to ensure good fidelity. A radio front end can be swamped by a more local and stronger signal. In other words, if you are listening to Capitol Radio FM and you walk into an area with a much stronger signal, say from a mobile phone mast, the mast signal will over-power and 'swamp' the front end of your radio. You can use this 'swamping' effect to turn your radio into a cheap-as-chips electrosmog detector.

You can also use this method to determine 'hotspots' of microwave radiation within your house. Hotspots occur when microwave radiation from several sources coincide as radiation reflects, refracts or diffracts off ceilings, furniture, walls and floors. I suggest you start at the

Wi-Fi router to set the volume so that the A.M. radio is screeching and methodically, scan the areas you spend a lot of time in such as the sofa, kitchen and especially bedrooms.

Therefore, cheap A.M. or indeed, F.M. only radios can easily detect the presence of Wi-Fi routers, mobile phone mast transmissions and of course, transients or dirty electricity on your house wiring cables and consumer items. I was very surprised when I used this trick to check for dirty electricity on my LED under-cabinet lighting in my kitchen. The front end of my radio was easily swamped by voltage transients more than likely caused by my not-so-cheap, Chinese made 240v to 12v voltage transformer that drives the LED lighting.

If you want to quickly check for the presence of dirty electricity in your home, simply turn on a gadget, using you're A.M. radio, walk around your gadget and see if the radio gets swamped. If it does, this is due to voltage transients on the line. The next stage is to remove every single item plugged into the mains and switch off the mains electricity at the panel. . When you switch off the electricity, the noise from your A.M. radio should be quiet other than background. Walk each floor in turn and check for interfering noises. Theoretically, your background A.M. background static should be stable i.e. it should sound the same and be at the same volume with no swamping effects.

Switch the mains power back on and walk the floors of your house again to check there are no incoming voltage transients to your house. If clear, switch on one item at a time and check for dirty electricity. If you carry this out methodically, it is possible to identify which items generate dirty electricity and you also get an idea which items generates the highest signal of dirty electricity. Also remember that each noise you hear from your radio has a frequency that is tied directly to the use of the item under test. In other words, whilst that consumer item is plugged into the mains, it is chucking out EMF (electromagnetic radiation) strong enough to be picked up by a simple detector such as a wide band radio receiver. The controversy at the heart of dirty electricity is to elucidate the long term implications from exposure to ELF/EMR (extremely low frequency, electromagnetic radiation), particularly when measuring magnetic fields. No-one truly understands what magnetism is and its capabilities in changing our biology for the better or worse.

Depending on the situation I am investigating I also use a field strength meter. These are very good for detecting weak and strong magnetic fields from say, radio towers which transmit low-band frequencies, local F.M. radio stations, Wi-Fi routers and mobile phone mast transmit antennas. If you scour the internet you may find, 'fsm' (field strength meters) more suited to the higher microwave bands. You can find one here using an RF chip LT5534.

http://electronics-diy.com/wideband-rf-field-strength-meter.php

Milham S. et al (2001) carried out a study in which he identified an incidence of childhood leukaemia in the US from the 1920s – 1950s. He plotted the rollout of residential electricity historically and determined statistically that the incidence of leukaemia's increased with the rollout of urban electrification and that children between 2 – 4 years old were most affected. Specifically, the most common cancer associated with rollout of the grid were single leukaemia subtype, common acute lymphoblastic leukaemia [(22)]. That is the kind of study I like to begin with because (a) data on electrification rates is available, (b) age mortality data is available and (c) the same data were also available from other countries including the UK. They go on to say,

"The fact that the childhood leukemia peak was first seen in the UK, may be due to the fact that Britain and Europe electrified their farms much earlier than those in the US, and UK mortality registration was more complete at that time. Power-frequency (50 and 60 Hz) alternating magnetic fields are the most likely active agents in the electrification effect. In the EMF literature, childhood leukemia incidence has been associated with historical calculated magnetic fields above one mG (milligauss) (24) and acute lymphoblastic leukemia incidence in children has been associated with measured magnetic fields above three mG (25). Residential magnetic fields above one mG are uncommon today, and must have been rare in the early days of electrification. In the US in the period 1920–1940 electricity in homes was used primarily for lighting, with the radio and electric iron often being the only electrical appliances. With the great increase in appliance use after 1940, residential electric currents and magnetic fields must have increased".

Clearly, any data that show an association between the rollout of a technology and the appearance of previously rare cancer types, particularly incidences of a cluster is worthy of proper investigation. The issue of course is the nature of what is being studied, it is always 30 – 40 years behind the technological rollout events. .It is a little easier where cancer clusters are identified.

In 2008, Milham S. et al[23] published an article based on his investigation of a cluster of cancers centred on one school in California. From 1998 – 2005, the school had employed a total of 137 teachers. During this period, 16 teachers developed 18 cancers of different types. In August of 2007, four teachers died of cancer. Following a legal standoff with the school, Sam Milham was able to take measurements of dirty electricity in classrooms and later, co-operated with an official government agency in their dirty electricity measurement programme. Milham S. et al were able to determine:

"When we applied total cancer and specific cancer incidence rates by year, age, sex, race, and adjusted for cohort ageing, we found an estimate of 6.5 expected cancers, 0.41 melanomas, 0.15 thyroid cancers, 0.22 uterine cancers, and 1.5 female breast cancers (Table II). For all cancers, the risk ratio (Observed/Expected 18/6.5) was 2.78 (P=0.000098, Poisson test); for melanoma, (O/E=4/0.41) was 9.8 (P=0.0008, Poisson test); for thyroid cancer (O/E=2/ 0.15) was 13.3 (P=0.0011, Poisson test); for uterine cancer (O/E=2/0.22), was 9.19 (P=0.019, Poisson test).

Table III shows the cancer risk among the teachers by duration of employment. Half the teachers worked at the school for less than 3 years (average 1.52 years). The cancer risk increases with duration of employment, as is expected when there is exposure to an occupational carcinogen. The cancer risk ratio rose from 1.7 for less than 3 years, to 2.9 for 3–14 years, to 4.2 for 15+ years of employment. There was a positive trend of increasing cancer incidence with increasing duration of employment (P¼4.6_10 _10). A single year of employment at this school increases a teacher's risk of cancer by 21%."

They went on to say:

Although not demonstrated in this data set, dirty power levels are usually higher in environments with high levels of 60 Hz magnetic fields. Many of the electronic devices which generate magnetic fields also inject dirty power into the utility wiring. Magnetic fields may, therefore, be a surrogate for dirty power exposures. In future studies of the EMF cancer association, dirty power levels should be studied along with magnetic fields. The question of cancer incidence in students who attended La Quinta Middle School for 3 years has not been addressed.

If anyone was awake in government health regulatory circles or indeed within Industry, these data should have set off alarm bells ringing very loudly. A clear association between induction of cancer clusters in one school with very high transient voltages in some classrooms. Secondly, the potential for cancer induction was likely possible in any environment within that school using 50 Hz – 60 Hz AC voltages. The scenario of the generation of dirty electricity and its effects on our biology is very similar to induction of adverse biological effects including cancers from exposure to microwave radiation, EMR (electromagnetic radiation). The

experience of EM measurements within the California school suggest that some environments with high transient voltages have low magnetic fields.

That article was published in 2008 and many articles of this type were peer-reviewed and published in its wake. Fourteen years later, cheap Chinese switch mode power supply units, (PSUs) are used across the world. They are used in all sorts of devices, particularly computer- and mobile phone-related peripherals. Regulators such as OFCOM, the European Union and the FCC in America have basically stood down and looked the other way as cheaply made switch mode power supplies have flooded our shores. The basic design of these consumer items is inherently and the situation is made much worse through lack of *any* filtering. In these cheapo PSUs.

Any finding of cancer following rollout of a new technology or substance is an indicator of an environmental pollutant. I understand that some individuals are pre-disposed to some cancer types based on genetics. The establishment oncologists make great play of this and generally speaking, add to the noise by providing much heat and very little light. If we take into account variability in our biology and how we use consumer products, it is clear that some individuals will be defined as light, medium and heavy users. If cancer is the final end game of dirty electricity, what effects do dirty electricity induce in our biology for occasional or very light and light users? Can we assume that any level of exposure to EMR leads to some form of adverse biological effect? Without proper recognition of the effects dirty electricity may have on our biology, we are all stumbling in the dark. Governments and its regulators, Industry and its regulators must come together so they clean up the mess they have created.

The residential aspects of dirty electricity has all sorts of implications for health that can easily be masked by other occupational variables including diet and genetics. The next topic of dirty electricity or electrical pollution is to look at what happens to our biology when electrical power is transferred from power plant to our homes.

Transmission of electricity and its adverse biological effects

Draper et al[24] carried out a case control study on the association of childhood leukaemia and distance from electricity pylons carrying high voltages. This is the background and conclusions to this study.

*"**Objective** To determine whether there is an association between distance of home address at birth from high voltage power lines and the incidence of leukaemia and other cancers in children in England and Wales.*

Design Case-control study.
Setting Cancer registry and National Grid records. Subjects Records of 29 081 children with cancer, including 9700 with leukaemia. Children were aged 0-14 years and born in England and Wales, 1962-95. Controls were individually matched for sex, approximate date of birth, and birth registration district. No active participation was required.

***Main outcome measures** Distance from home address at birth to the nearest high voltage overhead power line in existence at the time.*

***Results** Compared with those who lived > 600 m from a line at birth, children who lived within 200 m had a relative risk of leukaemia of 1.69 (95% confidence interval 1.13 to 2.53); those born between 200 and 600 m had a relative risk of 1.23 (1.02 to 1.49). There was a significant (P < 0.01) trend in risk in relation to the reciprocal of distance from the line. No excess risk in relation to proximity to lines was found for other childhood cancers.*

***Conclusions** There is an association between childhood leukaemia and proximity of home address at birth to high voltage power lines, and the apparent risk extends to a greater distance than would have been expected from previous studies. About 4% of children in England and Wales live within 600 m of high voltage lines at birth. If the association is causal, about 1% of childhood leukaemia in England and Wales would be attributable to these lines, though this estimate has considerable statistical uncertainty. There is no accepted biological mechanism to explain the epidemiological results; indeed, the relation may be due to chance or confounding."*

Although the authors state that the results of their study are not statistically significant, it is clear that an association exists between cancer induction and distance from high voltage cables. The conclusions of this study suggest that if you live within 600 m of a pylon carrying electricity the probability of contracting cancer is heightened. I finish the topic of dirty electricity/electrical pollution by discussing what is happening in the Netherlands.

The Health Council of the Netherlands published an Executive Summary, (2018/08) called 'Power lines and health part I: childhood cancer

"*In the Netherlands, on average approximately 135 new cases of childhood leukaemia are diagnosed each year. There are indications that the risk of getting this disease is twice as high in children living near overhead power lines than in other children. This means that one case of childhood leukaemia every two years may be associated with the presence of overhead power lines. Exposure to the magnetic fields generated by the power lines could be responsible for this, although other (unknown) factors and chance cannot be excluded. Motivated by a Health Council report published in 2000, the Netherlands Government recommends local and provincial authorities and electric power transport companies to apply a precautionary policy. The aim is to prevent as much as possible that new situations will arise with long term exposure of children to magnetic fields from overhead high-voltage power lines that exceed an annual average level of 0.4 microtesla.*

Request for advice
The then State Secretary for Infrastructure and the Environment (currently Infrastructure and Water Management) asked the Health Council to update its 2000 report and to consider not only leukaemia but also other health effects. This report, the first in a series of three, deals with childhood cancer. The other two reports, to be published later, will discuss cancer and neurodegenerative diseases in adults".

This report and its recommendations is significant in several ways because even in late 2018, the exact mechanism of cancer from EMR is not yet understood but they feel magnetic fields

as main suspect. Significantly, the Netherlands government has adopted a Precautionary Principle in relation to siting residential dwellings within a certain distance of high voltage cables. Thirdly, they will include the study of other adverse biological effects and offer guidance on these issues as well. That is a very progressive policy of trying to tame the likely beast of EMR and much enlightened relative to the rest of the world.

I turn briefly to wind turbines and some of its environmental and physiological problems that are beginning to manifest in those areas where these gigantic machines are installed.

Wind turbines

I am personally against the idea of using wind turbines to generate electricity. I am personally against the idea that a lower atmospheric content of carbon dioxide causes global warming /climate change. I see no economic nor environmental benefit in clothing the land and sea with arrays of massive structures called wind turbines. The only people I can think who benefit from these installations are (a) the people who manufacture, install and service these gigantic machines and (b) politicians who think wind turbines will enhance their 'green' credentials. The 'pink elephant' in the living room, is there for everyone to see, *they only work when there is sufficient wind to turn them*. I feel there are much better, cheaper and more efficient ways in which to generate power. Gosh, I feel much better, rant over.

If we put all the high costs, low and unstable generation of electricity to one side I discuss the dark side to these technologies. I discuss the impact of wind turbines on the environment, birds, animals and of course, ourselves.

Wind turbines produce noise in the low end of the electromagnetic spectrum from 20 Hz – 500 Hz. Frequencies below 20 Hz are called infrasound and sound frequencies from 20 Hz – 500 Hz are called low frequency noise. Some individuals are susceptible to the low frequency sounds emitted by wind turbines and suffer headaches, nausea etc. other individuals who live in homes less than 400m away from wind turbines suffer from a medical condition called VAD (vibroacoustic disease). Vibroacoustic disease (VAD)[(25)] is a:

"whole-body pathology that develops in individuals excessively exposed to ILFN (infrasound & low frequency noise). VAD, (vibroacoustic disease) has been diagnosed within several professional groups employed within the aeronautical industry, and in other heavy industries. However, given the ubiquitous nature of ILFN and the absence of legislation concerning ILFN, VAD is increasingly being diagnosed among members of the general population, including children. VAD is associated with the abnormal growth of extra-cellular matrices (collagen and elastin), in the absence of an inflammatory process".

Vibroacoustic disease is normally confirmed via echocardiography that show characteristic thickening of cardiovascular structures i.e. .the pericardium and mitral valve. There is an awful lot of peer review literature on issues of ILFN (infrasound low frequency noise) but most

individuals living in sight of wind turbines are probably unaware that these structures are already associated with adverse biological effects. On the flip side of these arguments are a group of scientists who say that there is no peer review scientific evidence for the specific mechanism to explain any or all of it. It is also clear that even though millions of people died from lung cancer smoking cigarettes, the specific mechanism of cancer induction has never been identified and peer reviewed in a scientific journal.

The environmental impacts of wind turbines are also growing which include (RSPB web site):

- disturbance or ecological stress on birds and animals from installation, maintenance and operation of wind turbines
- barriers to flight, migration, play and survival of birds
- habitat loss, particularly for birds that nest on the sides of cliffs and hilltops
- collision of birds onto wind turbines and loss of life is a major problem

Some individuals say that the operation of wind turbines affect the reception of their TV and radio programme signals. Few people appreciate the aesthetics of an array of wind turbines in the sea, along the horizon and atop a cliff top. When I think about the effects of frequencies on the human body I think back to Bob Becker's book, the body electric. There is so much we do not understand about ourselves and the environment, particularly in relation to sound frequencies.

I finish this chapter on a brief discussion on the pros and cons using solar panels to generate electricity.

Solar panels and all that jazz

Most people are very happy to install solar panels on their roof because (a) they generate electricity for their needs, (b) they can sell surplus electricity to the power companies and (c) they are doing their bit for a clean environment by not obtaining their electricity from either nuclear or coal-fired plants.

There are pros and cons in using solar panels and in the UK, the majority of solar panels are installed on top of the roof. The issue straight away relates to the use of that roof space. Effectively, you might be sleeping underneath a bank of solar panels with associated wiring that involves an inverter and possibly, a smart meter to record how much electricity is fed into the national grid. If you suffer from EHS (electro-hyper-sensitivity) you may find it uncomfortable to say the least and much of your discomfort depends on how sensitive you are to mostly weak electromagnetic fields and ELFs, (extremely low frequencies).

Firstly, however, I start with a few construction materials. Solar panels use lead and cadmium in its construction. Generally, speaking unless you have a massive lightning strike or fire, these toxic heavy metals should not pose a health risk, unless the panel itself is ruptured and internal components arc or vaporise. In the UK this is not too much of a problem but in parts of the world which are affected by ball lightning etc. on a seasonal basis, it is something to think about.

I am not sure about the movement of a DC current produced from a solar panel. The electrical current at some stage has to move from the panels to the inverter but the magnitude of the current involved and strength of the magnetic field, I am not clear about. The only thing I can say with certainty is the movement of electrons in a wire, generate electromagnetic fields. The magnitude of the electric field from a solar panel will be small with a correspondingly weak magnetic field. I am unsure about the dynamics of any magnetic fields generated during the charging, under-load and at-rest conditions. What I can say is no-one truly understands the conditions of exposure i.e. duration and intensity of magnetic fields in causing biological harm. Due to this uncertainty and at best, I would be cautious in advising anyone to sleep underneath a bank of solar panels.

The major hazard and danger in using solar panels to generate electricity, however, comes from the use of an inverter. The voltage from solar panels is DC (direct current) and this is converted to AC at a higher voltage via an inverter. Inverters interrupt the electrical supply and this produces voltage transients i.e. dirty electricity. I suspect most inverter manufacturers are

aware of this situation and fit suitable filters on the 50 Hz – 60 Hz voltage line. The cheaper, inverters may not have good filtering and dirty electricity will be laced onto the mains wiring of your home. Thus, dirty electricity may induce heavier currents and stronger magnetic fields. Under these conditions, be cautious if you decide to sleep underneath a bank of solar panels or close to the wiring which connects the solar panels to the inverter and hence, the mains wiring.

The other safety issue using solar panels relates to the use of smart meters. Microwave radiation is currently defined as a Class 2B carcinogen based on the increase of gliomas (brain tumours) in heavy-users of mobile phones. Using smart meters is not a good idea because there is little difference between installing a smart meter in your house and allowing the telecoms companies to install a mobile phone mast in your garden!

The pros of solar panels:

- You produce your own electricity
- Theoretically, you are free of the national grid and master/mistress of your own ship
- You help reduce your environmental footprint because nuclear-power generated electricity devastates the environment over hundreds of thousands of years via radioactive wastes. Coal-fired power stations cause dust and respiratory problems besides the harms they do excavating coal from inside the Earth using all sorts of heavy duty equipment

Cons of solar panels:

- Solar panel system (including the inverter) may generate dirty electricity and ELF EMR (extremely low frequency electromagnetic radiation) from 50 Hz to 60 Hz
- Not a good idea if you are electro-hyper-sensitive
- The optimum temperatures for solar panel electrical generation is between 15^0 C– 35^0 C. Temperatures in excess of 35^0 C results in less energy being produced and efficiency loss is between 15% - 25%. Even with solar panels, you can have too much of a good thing!

Chapter 10: Strategies to reduce risk of harm from exposure to microwave radiation

I am sure if parents knew the dangers and hazards that lie behind a Wi-Fi router or the use of tablets and computers at school, they would revolt until things change. Many parents as discussed previously, bear the brunt of bringing up children damaged by exposure to microwave radiation. The sheer number of physical, psychological and mental 'conditions' many children have silently manifested over the past 30 years or so since introduction of the Digital Age, bear testament to the presence of a 'silent killer' and potent environmental pollutant. I realise these are very brunt words, yet I am sure that the scientists who have spent much of their life trying to get the ICNIRP see sense in matters of EMFR, will to a large degree, agree to the tone of my words – for me, it's sheer exasperation because Science has been hijacked by those industries with the biggest wallets and smallest social consciousness's!

How to reduce exposure to microwave radiation

The easiest way to reduce our exposure to microwave radiation is very simple, (a) we hold government, industry and the standards setting body, ICNIRP to account and (b) we find out as much as we need to know about the dangers of microwave radiation and once we achieve that, we change our lifestyle accordingly.

Legislative regimes that govern telecommunication networks are similar around the world. The ICNIRP give advice and safety statements to governments and governments act on that advice. We have to call out this 'cosy relationship' between the 3 trickster monkeys because their policies are inflicting huge damage on its citizens. The first part of this chapter is all about government and the legislative landscape in which the cards are stacked against the interest of the public. The second part of this section is all about what we can do, right now, to lessen our exposure from microwave radiation. My plea is simple – do what you can within the constraints of your lifestyle and *from a position of informed consent*. For some it may entail buying a few additional computer peripherals such as cables but for others, hard choices may need to be reached. I simply wish that everyone understand the safety implications of exposure to microwave radiation. I am but one of several messengers and my job is done, when I deliver the message. In other words, I have no interest in what you think, what you do and any subsequent choices you make. It is your life and it is your choice.

•we must have a judicial review on the competence of Public Health England, (now called UK Health, Security Agency) on the advice it gives to the British public and other government departments in relation to exposure from microwave radiation and consequent health risk. We must have a full and proper investigation between the (a) the 'revolving' door' principle of top personnel from the ICNIRP being employed as heads of department within Public Health England and (b), this investigation should also investigate the conflicts of interest in Public Health England's' top advisory panel, AGNIR, (Advisory Group on Non-ionising Radiation) where members of Public Health England's AGNIR committee also acted as chair at top ICNIRP meetings. This advisory panel was recently and quietly dis-banded yet the advice from this disgraced panel still form the bedrock advice given by PHE on matters of exposure to microwave radiation. That is a scandal of the highest order because the shepherd is not supposed to dine with the wolf and offer information about weaknesses in the integrity of the sheep pen.

•we must investigate which MPs and telecommunication industry lobbyists managed to completely up-end the sovereignty and legislative framework behind the charges land-owners can levy from telecom companies wanting to use their land for mobile phone telephony and associated infrastructure.

•we must investigate which MPs lobbied to get local planning laws to favour, wholeheartedly the telecommunications industry in re-defining local planning legislation. Politicians have a duty of care towards its citizens in ensuring that no industry ride rough-shod over the safety and wellbeing of its populace in pursuit of their interests. In the UK, the investigative tral in who produced what in terms of legislation can easily be found by looking through the records of Hansard.

•we must investigate what politicians and their scientists know and understand about the effects of microwave radiation. First port of call would be all military departments involved in the use, development and possible deployment of historical radar and associated safety research, including microwave weaponry. The full research portfolio of past radar research and its biological effects on radar workers must be disclosed. All records, data, correspondence and emails on any issue related to non-thermal biological effects, particularly from the PHE's regulatory department should be made public and searchable on-line. We should be made aware, who said what and who recommended this or that policy. The British public also need to understand that the very frequencies that connect our mobile phones to each other can also be used in covert mind control programmes to either excite or sedate its citizenry. The MOD should make available any data or correspondence on anything related to mind control and microwave weaponry.

•the legislation must be changed to force the telecommunication industry to include at point of sale and in all advertising in big, bold lettering, the SAR value of that device and the IARC cancer designation i.e. Class 2B carcinogen.

•social media platforms should not have the social power to decide what we read, think and talk about. Their activities should be regulated as per the mainstream print and news media. In order to control bias in content and 'cancel culture', fact-check organisations should be dis-banded and free speech re-instated.

•the scientific peer review process also needs a complete overhaul. It should be mandatory that any workers, organisations and university involved in any type of research declare a full

and proper ‘conflict of interest’ declaration. This declaration should be in a form to enable anyone reading that declaration to (a) who is behind the funding of that research and the past history and association between research fund benefactor and named individuals. In other words, if Nokia has a particular research interest and they always give it to the same university departments, those universities and Nokia itself should be investigated for possible bias. None of that favouritism whereby certain types of conclusions to a research study leads to yet more research studies. If this was to continue ad-infinitum, the scientists are reduced to mere hired hand gunslingers and the research patrons, dodgy sheriffs.

- in that same vein, government research should be much more transparent and research heads of department should attempt to widen their research contractor base.

- the editorial boards of scientific publishing houses must also be made accountable to their readers in relation to bias and the selective publishing of one group of studies over another. Publishers of scientific studies should pursue the unspoken *modus operandi* of any scientific topic i.e. unbiased and objective. In other words, they should not cherry-pick studies based on revenue, mainstream science status or personal agreement.

- finally, in terms of getting those responsible for our safety and well-being to actually do something useful for mankind, symposia should be arranged in which all governments from around the world engage in proper scientific debate, discussion and discourse on what they understand from their past radar development or military use of microwave frequencies. All of them have to come clean on what they, know and where they are in terms of uses of microwave radiation and adverse biological effects from exposure to microwave radiation. That Cold War Mentality and the conspiracy of silence has to be dismantled so that we co-operate rather than conflict each other. That way, we avoid blindness and everyone has the gift of vision.

What we can do now to reduce exposure to microwave radiation

- In order to reduce our use of microwave radiation, a simple and quick response is to hard-wire that device. If we hard-wire our router to all rooms that require an Internet connection we guarantee that (a) a stable connection that does not drop out every time someone opens a door and (b) we reduce the level of microwave radiation to ourselves, family and your neighbours. From bathing in a sea of microwave radiation 24/7, we reduce that type of exposure to nothing-ness simply using a hard-wired cable connection. We can also hard-wire our keyboard, mouse and any peripherals we plug into the computer such as speakers, cameras and microphones.

Tablets are very difficult to tame because they were designed specifically for the Internet. In situations like this (which also applies to laptops), buy a RJ45 dongle you connect into a USB port to access the Internet. Failing that, have a look through the very small print in the manual and find out the safest way to use that device in order to stay below the SAR rating of that device.

- When using *tablets* and *laptops*, never place them directly over your crotch area, especially if you are pregnant. Besides getting a dose of microwave radiation to your genital areas or developing baby, you also expose yourself to lots of ELF EMFs from the thousands of sand-sized components of that device.

- *Smart meters* use microwave radiation to send information from your meter back to base. If you have had this meter less than 12 months, you can ask the power company to exchange it back for a good old fashioned analogue type. If you have had it for more than 12 months and you think it might be causing headaches, loss of sleep and general discomfort, tell your energy company you are electro-sensitive to microwave radiation and ask them to put your smart meter in 'dummy' i.e. analogue mode. When they do this, periodically check it stays in dummy mode by using the cheap and cheerful A.M. radio detector.

- *Baby monitors* are a real problem because they hold the promise of instant communication between yourself and your baby. The downside is, your baby is exposed to microwave radiation, especially whilst sleeping. Look for vintage types that have audio but no camera capability. Ideally, any baby monitor that uses a frequency of 27 MHz or failing that, 50 MHz will do. Try and position the monitor as far away from baby as possible. Many of these devices use electret microphones which are quite sensitive in picking up the human voice. Try Amazon or Ebay or your local used market place for the much safer analogue baby monitors.

•*Black-faced watches* powered via microwave radiation can simply be replaced with an analogue type. Wearing anything directly against the skin that emits microwave radiation is not good, both in the short and long term. Some wearers of these watches have complained about burn-rashes on their wrist as do joggers who strap them around their arm. These devices continually emit microwave radiation and record all sorts of physiological data whilst running and even send it back to your laptop before breakfast! It is nice to have some of these physiological data but it does not make sense if that device is injurious to health.

•*Apple ear buds, wireless headphones* and wireless speakers and microphones for professional singers is also very bad news. Once again, any device which relies on microwave radiation to effect a connection to another device or the Internet is biologically problematic. I see more and more shop staff using over the ear headphones powered by microwave radiation. They wear them all the time they are working. Companies and for that matter, schools and universities have a duty of care for all employees working for them. Employers should ensure that any device they ask employees to use as part of their work regime does not cause harm, discomfort or injury. Ignorance of that fact is no defence in a court of law.

•Modern cars are now equipped with *mobile phone telephony*. This is counter-intuitive because car bodies act as Faraday Cages. Faraday cages are designed to stop or reduce any signals getting inside that space. This means the transmit signal from a local mobile phone mast has decreased which results in two effects, (a) your signal may breakup or distort and (b) in order to maintain communication between mast and car, the mobile phone transmitter, automatically increases its transmit power. I always advise that if you use a mobile phone whilst in transit, use it outside the Faraday Cage environment of your car or if that is not possible, wind your windows down as far as outside noise will permit.

•*Smart TVs* emit microwave radiation as soon as you switch it on. If you enjoy the functionality of talking to the TV there is little you can do to reduce microwave radiation other than to switch it off and pull its plug from the mains when not in use. Whilst it is switched on or on standby, it is scanning your room for sounds and its camera is also recording what is happening in your room. In other words, it is emitting microwave radiation all the time because it is sending data back to base server even in standby mode.

•The use of *mobile phones* represent probably the most condensed danger from exposure to microwave radiation. Many individuals nowadays have a psychological dependence on their mobile – where they go, it goes. Read the very small print on the manual so that you fully understand the danger putting your phone directly on your skin. Observe the stated distance between phone and skin otherwise you exceed the SAR. Some users have earphone or headphones and in poorly designed mobile phones, these long leads act as an antenna, and a poor one at that. A mis-matched antenna generates even more heat from that device and that device is normally stuck against the region of your brain. There is not much you can do to reduce your use of mobile phone because some people use it for work or simply entrained by it. What you can try is to switch off all the bells and whistles, put it in airplane mode and check it once an hour or whatever time frame is good for you. When the brain is entrained, response is automatic and there is little that can be done other than to point out what is happening. If this triggers you, I can only apologise but in saying sorry, I am fully aware that the manufacturers of that phone and its software developers purposely engineer brain entrainment frequencies and Pavlovian-type conditioning into its users. You may think all this is stuff and nonsense. If you do not, however, use a mobile phone for work, switch it off for a week and

see what happens. You may get a pleasant surprise because you are no longer a slave to it or you may psychologically miss it within a few hours.

•Almost every spectator event I have attended i.e. school plays or listening to professional musicians, singers and dancers, all of them use *wireless, Wi-Fi enabled microphones*. The next time I go to these events, I will take a few measurements and send it off to the organisers. Almost everyone is unaware of the hazards and dangers of microwave radiation. I have met so many people in those professions i.e. the sound technicians who argue that microwave radiation is non-ionising and therefore safe to use. I have also discussed these issues with other radio hams who experiment in antenna and propagation studies at microwave frequencies and few if any, know anything about adverse biological effects. Some of these individuals are at the cutting edge of the hobby and they are not stupid or disinterested, quite the opposite. None of this non-thermal adverse biological effects is on the horizon or within the consciousness of many individuals. My local hospital, Arrowe Park on the Wirral for example, has a huge bank of mobile phone antennas on its highest building which also houses patient wards and another mast installation is housed halfway up 25 m high chimney of an on-site incinerator. Incinerators should never be sited within residential areas anyway, because they produce all sorts of environmental nasties such as dioxins. Similarly, my local walk-in surgery, accident/emergency hospital called Saint Catherine's, Wirral also houses a huge assortment of antennas from mobile phone telephony to TETRA police antennas right at the very top of their tallest buildings. Inside these very grounds is a unit dedicated to treating young children with stress, anxiety, depression and self-harm tendencies. I find it ironic that all these mental health professionals have not put 2 and 2 together to at least think about the adverse effects of some of the technologies that surround us. These people are not stupid, just ignorant of the dangers from exposure to microwave radiation. Hundreds of doctors and medical staff work in these buildings yet, they go un-noticed, presumably because most people are unaware of its dangers.

The ignorance that surrounds adverse biological effects to exposure from microwave radiation is literally staggering. I would expect health professionals to be aware of such issues because they deal with its consequences every day. That said, hospitals are run and organised by its Trust Administrators. They function in exactly the same way as university administrators. These individuals should understand that the decisions they make in allowing telecom companies to install their mobile phone masts on-site have serious adverse biological consequences to anyone under the umbrella of that radiation. These people are not stupid, just ignorant. We have to initiate a dialogue in which the police, fire, ambulance and other emergency services are made aware of the dangers and hazards associated with the use of microwave radiation. The same can be said for schools, colleges and universities. All of the above is a direct consequence of the conspiracy of silence from the three monkey tricksters.

Conclusions:

I finish this book in the way that I started it. I wrapped up my EMF Consultancy because of the conspiracy of silence within the halls of the three monkey tricksters, government, industry and the ICNIRP. For years and years, I have watched these organisations dismiss safety study after safety study simply because the 'alternative' researchers mention the taboo words, "***non-thermal biological effects"***. In 2018, the National Toxicology Programme provided the information I was waiting for (a) the research was carried out by the US government with impeccable scientific credentials and (b) the data show ''clear evidence'' of induction of several cancer types in relation to exposure from microwave radiation and (c) its findings demonstrated the falsehood that frequencies from 100 kHz to 300 GHz are non-ionising. Proper, rigorous and old-fashioned scientific debate, discussion and discourse is urgently needed to address this single issue that radio frequency radiation between 100 kHz – 300 GHz be classified as a Class 1 carcinogen i.e. 'ionising radiation'.

A study in biological safety was called for in 1999 by the FDA (Federal Drugs Administration) and the NTP rodent cancer study took almost 20 years to complete – that in itself is astonishing. I suspect there was an awful lot of in-fighting within the NIH, carrying out this work, hence its delay. The total costs of this work amounted to over $25,000,000. Despite the fact that the NTP rodent cancer study show ''clear evidence'' of cancer induction and evidence of DNA breakages , the ICNIRP and the IARC of WHO, including government health regulators, simply ignored these findings and/or unsuccessfully attempted to instil 'noise' into the findings of these studies.

The ICNIRP are currently arguing that black is white and 2 plus equals 5. The patrons of the ICNIRP simply ignore the NTP research conclusions and refuse to answer directly, any questions related to the NTP rodent cancer study. In Appendix 1, I include detail of correspondence between one of my clients, her local MP and responses from the PHE. The whole affair was very enlightening because it underlined to my client that government and its regulators will not directly engage with any discussion that even suggests, exposure to microwave radiation is carcinogenic. The MP himself had no knowledge of what was being asked (or so it appeared) even though he was a committee member of a similar computer-related Task Force in the House of Commons. He sent the questions to the PHE and it is here that you can see what actually goes on when an ordinary member of the public asks a government health regulator a few simple questions about the NTP rodent cancer study and its implications on current advice to the British public. I name the MP in Appendix 1 because all of this obfuscation must be called out and those responsible held to account. To add insult to injury, the response from PHE was encased within the advice of its now defunct and dis-graced, top advisory, AGNIR. Presumably, anything that has happened within the world of non-thermal biological effects has absolutely no impact in changing the consciousness of PHE/ICNIRP!

The NTP rodent cancer study and its response from government scientists, has it all, academic hand-bag fights, 'noise counter studies', obfuscation, hand-wringing and tears before bedtime. Significantly, another study similar to the NTP rodent cancer was published shortly after the NTP study that came out with almost identical results. This study was carried out by the Ramazzini Institute. In 2011, the IARC which is a scientific panel of the World Health Organisation designated microwave radiation as a Class 2B carcinogen based on brain tumour incidence amongst heavy users of mobile phones. Since that time, there has been thousands of

safety studies that have identified a slew of other non-thermal adverse biological effects. All these studies were either ignored or poo-pooed by the circus of the three monkey tricksters.

The ICNIRP are aided and abetted in all of these manoeuvrings by the actions of the scientific arm of the World Health Organisation, the IARC. In theory, the IARC was waiting for further scientific evidence and data in order to review the safety profile of the Class 2B moniker for microwave radiation. It appears the IARC are, as we speak, back-tracking and attempting to re-visit their very own Class 2B designation for microwave radiation to see if it was correct in the first place. In other words, even though the scientific community has 'clear evidence' that exposure to microwave radiation is carcinogenic, the IARC is trying to kick the whole issue backwards into that agency's own 'review'. This is 'Alice in Wonderland' stuff and you just can't make it up! This is shorthand for kicking the NTP and Ramazzini rodent cancer studies into the 'long grass'. The IARC has been compromised and are feverishly attempting to safeguard the stance interests of the ICNIRP.
The current paradigm of exposure safety promulgated by the ICNIRP/PHE/WHO/IARC is beginning to crumble and they are beginning to fight back. This latest attempt by the IARC to re-visit the Class 2B carcinogen moniker is testament to the panic that has been generated within the gate-keepers of the three monkey tricksters.

Thomas Kuhn refers to this state within Science as a "scientific revolution" or the beginnings of a paradigm-shift in which the old and new theorists fight to displace each other's hypothesis. For those scientists defending their old position, this is a time of enormous change, doubt and uncertainty. A perfect and recent example of this is the displacement (literally) of the Theory of Shifting Continents to the Theory of Plate Tectonics to explain crustal movements back in the 1960s. It is a tug of war between the old and the new ideas. Eventually and due to its greater explanatory power, the new science replaces the old science. The new science then becomes institutionalised i.e. it reaches the "mature stage", and *it* becomes the 'new normal' i.e. Theory. When this stage is reached, the focus of research turns inwards within the confines of that particular theory. This new paradigm reigns supreme until yet again, another anomaly challenges the supremacy of the existing paradigm. In this way, Kuhn argues, Science progresses. Most scientists today undertake the bulk of this type of research and they do it unwittingly or knowingly. Many scientists are ignorant of the philosophy behind the scientific method. The implication of this for Science is that, for much of the time, most scientists follow a predetermined line of enquiry where questions posed are framed within the confines of that particular model or theory. If the existing theory is wrong it will not show itself wrong until new or conflicting anomalies rolls into view: this happens by accident, rather than by design. Kuhn's 'normal science' has powerful implications for defining research agendas and working within the logic of its method. The implications for most scientists working in the "normal science" phase is that the fundamental assumptions inherent within the theory have become accepted knowledge. Scientific enquiry now becomes akin to perception. Researchers expect a certain outcome, nay, they are trained to look for specific objectives and easily miss data that is right under their nose. They miss it because they are not looking for it and when this unexpected outcome presents itself in most of their experimental data, they explain it away as 'outlier' or experimental error.

The issue right here and right now is that the current scientific 'paradigm' in relation to the safety of exposure to microwave radiation is little more than a wafer-thin, blind-hypothesis. It assumes its own self-referencing 'paradigm' status simply because of the societal power of the ICNIRP, government and industry. It never had a scientific foundation on which to build a

paradigm. It simply states, there is no cause for alarm from exposure to microwave radiation and that is it. This fig-tree of physics babble has been repeated over the years and if you ask most physicists whether radiofrequency radiation, (RFR) is ionising or non-ionising, they echo what they were taught as students that RFR is non-ionising and get annoyed if questioned further. If word ever gets out that RFR has properties of ionisation, the very foundations of many scientific organisations, universities and research groups will crumble overnight.

The current argument whether RFR is ionising or not is not about science, it is about social power and the ability of one group to shut down and cancel, debate, discussion and discourse. They have managed to get away with for a long time simply because the 'gold standard' data i.e. from the government itself was not there. We now have that data and try as they might, it cannot be ignored. That spectacle in itself is akin to watching a scene from Alice in Wonderland.

Some of the background to all of this can be found here: https://microwavenews.com/news-center/iarc-rf-whats-next

In closing, I have no confidence in the world of Big Science, governments or Industry. I think my lack of confidence in these bodies is due to the fact that much of the science carried out is (a) biased and (b) few research scientists, universities or institutions bite the hand that feeds them. The NTP and Ramazzini rodent cancer study data simply says, "the Emperor has no clothes".

I am also aware of the great physical, psychological and mental damage the Digital Age has inflicted on our kids. So many of them are unusually stressed and full of anxiety. .Even grownups are affected by the Brave New Digital Age because our socialisation processes have changed. We text rather than chat, we never reply 'thanks' to a question we texted and of course, life-long friendships end because our friends refuse to respond. Normal boy meets girl situations are replaced by dating apps and we check up on old friends like we did in the past, we simply check their social media feeds instead. Social conventions and conversations seem to be re-wired and life takes on a less than human edge to it.

The road ahead is simple, the more we embrace the use of microwave frequencies in going about our daily business, the less human we become. There is no stone of our social interactions that is not being over-turned in our use of microwave radiation-enabled gadget, toys and products. I am lucky because I can remember life before the dawn of the mobile phone. I am also aware that societies change through time and space and that is fine. What I am against is the use of a technology in which issues of safety are ignored, disguised or discarded. The real question that will be asked at some stage of our existence is, "what and who is behind the Digital Age" and what is their end game. We can stop all of this, once we realise and understand the full story behind exposure to microwave radiation and its effects on our biology. It is our responsibility to look after our own health and that of family and community.
We have to stop giving our power away to governments because governments do not have our best interests at heart. We must question everything and seek full informed consent on anything that might impact our biology. My kids are growing up in a world I do not even recognise. The path that lies before mankind has been silently and covertly put in place to force a merge between consciousness and machine. The machine is a parallel, digital universe which has no soul and is governed by its alignment of 0s and 1s. The Architects of this alien parallel world are currently unknown. Zuckerberg's metaverse is the second baby step into that cold machine

world. The first baby step has already been achieved and that was for everyone to embrace the toys and gadgets of the Digital Age.

We must send a message to the gate-keepers, no more, your time is up.

Appendix 1:

One of my clients suffers from EHS, (electro-hyper-sensitivity), she is very active in ensuring her local councillors, planning department and MP (Member of Parliament) are aware of the condition of EHS and current controversies in relation to safety issues within mobile phone telephony. She speaks her mind, is quite direct and takes no prisoners when government officials try to re-assure her that everything is rosy in the garden.

The point of this Appendix is to simply show what happened when she asked her MP Mr George Howarth, who represents Knowsley to send off several questions to PHE in relation to EHS and 5G. She sent the questions off to Mr Howarth and went down to his constituency office to discuss her concerns in person. This is what my client wrote back after that first visit to her MP.

"*Good morning Mr Howarth*

Thank you for seeing me on Friday regarding my issues over health concerns of the 5g roll out. You mentioned that you would have to re-word my three questions to Public Health England as you said they were "an opinion". The questions are our questions and as such, it is your duty to send them onto PHE. Whether they are an opinion is neither here nor there. All the questions can be backed up with verifiable scientific evidence. If you look at the links I enclosed you will understand that the questions are factual and not based on supposition or anything else. If you are still unsure, you can contact Dr Ellis Evans, my EMF consultant, to seek clarification or just send them onto PHE. After all, it's PHE we need a reply from. If you could send it to the Radiation Dosimetry department at PHE as they are the responsible government department. The PHE have 21 days in which to reply to you, so I will then await your response from them.

My client was fuming after this initial encounter with her MP because he wanted to re-word her questions because he thought they were 'opinion'. A dictionary definition of 'opinion' includes, *a belief or conclusion held with confidence but not substantiated by positive knowledge or proof, a judgment or estimation of the merit of a person or thing, belief stronger than impression and less strong than positive knowledge, a view, judgment, or appraisal formed in the mind about a particular matter, belief stronger than impression and less strong than positive knowledge.*

Amongst other interests, George Haworth aka Sir George Howarth is Vice Chair of the All Party Parliamentary Groups on Pancreatic Cancer; **Cyber Security**; Dairy; Diabetes; **Digital Identity**; Eating Disorders; Fire Safety and Rescue; International Freedom of Religion or Belief; and the Liverpool City Region.

He is vice chair of cyber security and digital identity so he must know the difference between a mouse and a keyboard. This is the first time, I have heard of an MP trying to reframe a constituent's question before he sends it to another government department. That encounter more or less set the tone for what followed. The questions were sent off and PHE responded. They failed to offer responses to my client's question so she contacted her MP again and basically asked him to get PHE to answer the questions again. The three questions my client asked are below:

1. The recent NTP rodent cancer data show 'clear evidence' of the carcinogenicity of exposure from microwave radiation. In view of this new data on the effects of non-ionising radiation on our biology, should PHE amend its advice to government and consumers that non-ionising radiation is safe?

2. Exposure to microwave radiofrequency radiation was classified as a Class 2B carcinogen by the scientific arm of the World Health Organisation (WHO), the International Agency for Research on Cancer, (IARC) in 2011. Due to several recent scientific studies on observed carcinogenic effects from microwave radiation i.e. NTP and the Ramazzini Institute Italy, plus many others, a report from its Advisory Group has recommended as priority that the status of non-ionising radiation be re-assessed as a Class 1 carcinogen. Will PHE accept that there is sufficient scientific evidence against the safety from microwave radiation for (a) the precautionary Principle to be applied and (b) PHE carry out their own non thermal carcinogenicity studies as soon as possible?

3. Can PHE state whether they are aware of any non-thermal safety studies related to the use and deployment of 5G frequencies i.e. in excess of 5 GHz – 300 GHz on mammalian biology? If no safety studies were carried out prior to the rollout of 5G is it not good sense to follow the Precautionary Principle and allow time for proper safety studies to be conducted before these frequencies are unleashed onto the public?

The Chief Executive Officer of PHE, Duncan Selbie replied on behalf of his dosimetry department. I am not sure who was in charge of the dosimetry department at the time of this letter. I attach Duncan's cover letter in full below. The cover from a top government official letter always tell the reader who is responsible for what. Notably, even before we get to the response from his department, he includes the ICNIRP and the World Health Authority as pillars of scientific credibility and respectability. I am grateful that Duncan sympathised with the plight of my client's condition, EHS but completely bemused when he mentions my client visit her GP, (general practitioner). Like most medical people, they have absolutely no idea what is going on.

What is very clear from the perspective of the PHE and despite the NTP and Ramazzini and all the thousands of other peer-reviewed articles on the adverse biological effects from exposure to microwave radiation is their silence on anything not written by them or the ICNIRP. This refusal to not answer directly with their own data was very frustrating.

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Protecting and improving the nation's health

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16 May 2019

Dear Mr Howarth

Fifth generation (5G) technology

Thank you for your letter regarding the concerns of Dr Evans for his client [redacted] who suffers from electro-hyper-sensitivity (EHS) and her fears about the rollout of 5G-enabled products which use high end microwave radiation.

Public Health England (PHE) advises the United Kingdom (UK) Government on the public health aspects of exposure to radio waves, including those associated with fifth generation (5G) devices and other types of radio transmitters in the environment.

Central to PHE's advice is that exposures to radio waves should comply with the guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). ICNIRP is formally recognised by the World Health Organization (WHO). This position is underpinned by various formal reviews of the scientific evidence suggesting that exposure to radio waves below ICNIRP guidelines do not cause adverse health effects, as explained in the attached PHE radio frequency (RF) advice summary document, which includes advice on electrical sensitivity/hypersensitivity.

PHE sympathises with [redacted] situation. Given that carefully conducted studies have not found a causal link between exposure to RF signals below recommended guideline levels and EHS, the best advice that can be given, is to discuss the symptoms with her NHS general practitioner, who is best placed to take a holistic view on her personal situation.

Regarding the three specific questions raised, the RF advice summary document attached with this letter explains PHE's views on the National Toxicology Programme study and the WHO 2B classification and contains links to the latest research reviews (and types of studies) that help to inform PHE advice.

Public Health England

PHE recognises there are concerns about the rollout of 5G. However, PHE's view is that no negative effects on public health are anticipated and that the higher frequencies being considered are already covered by current exposure guidelines. That said, PHE continues to monitor the science and would have no hesitation to review our advice if it became necessary to do so.

I have also attached briefing on 5G, which I hope is helpful.

Please feel free to share this response and the supporting documents with Ms Webster.

With best wishes

Yours sincerely

Duncan Selbie
Chief Executive

Enc

The PHE sent several attachments and the first one relates to, amongst other issues, EHS, electro-hyper-sensitivity. The issue was, we did not ask any questions on EHS simply because so few people in the UK understand what it is and what it means. Nonetheless, I include it here because the PHE have some knowledge of what is churning away in the background.

PHE briefing document on Electrical sensitivity/hypersensitivity

The AGNIR report has carefully assessed whether certain people are especially sensitive to exposures to RF fields, leading to unpleasant symptoms which affect their health. Many studies have now been carried out, reflecting the importance ascribed to understanding the condition and making appropriate help available to sufferers. AGNIR concludes there is increasing evidence that RF fields below guideline levels do not cause symptoms and cannot be detected by people, even those who consider themselves sensitive to RF fields. PHE agrees with AGNIR that this does not undermine the importance of the symptoms that are experienced, but it does suggest causes other than those directly related to RF fields should be considered.
Unfortunately, the symptoms many people complain of are all too common in society, not just in those who consider themselves to be ill. Such findings are not new, for example in 1990, before the advent of modern communications technology, 27% of people complained of having had a headache in the last month (Blaxter). HPA published a review of the public health aspects of electrical sensitivity (EHS) in 2005 and this included comments on the management of affected individuals and evaluation of treatment options. The report is available at:

http://webarchive.nationalarchives.gov.uk/20140722091854/http://www.hpa.org.uk/Publications/Radiation/HPARPDSeriesReports/HpaRpd010/

Lest we forget, the top PHE advisory panel AGNIR was quietly dis-banded in 2017 due to conflicts of interests because the heads of department of the ICNIRP became heads of departments of the PHE. They also and often 'chaired', each other's meetings. There is also no mention of countries that recognise EHS as a medical condition, particularly the Nordic countries. Ironically, the first full scale rollout of mobile telephony occurred in the Nordic countries. From an objective perspective, any advice that is acted on by the PHE is biased advice yet, the AGNIR panel was dissolved in 2017 and they still use the same advice from that conflicted panel, despite the conflicts of interest! It is evident that ten years on since that disgraced panel was dis-banded no-one within the PHE sought to fine-comb the activities of the AGNIR panel to weed out pertinent exposure safety advice and advice concocted between AGNIR and the ICNIRP. Lest we forget, PHE is supposed to ask rigorous scientific questions on the basis and validity of any advice it gets from the ICNIRP. Other countries, notably Italy and Switzerland included most Soviet-era countries, have not wholeheartedly endorsed the advice on exposure levels from the ICNIRP. As a precautionary measure, these countries took the proposed maximum exposure levels from the ICNIRP and decreased these levels by a factor of 10 or 100.

My client suffers EHS discomfort every time her fridge switches on and she has to run from the kitchen when she switches the kettle on. The PHE's response to her EHS question was less than comforting nor convincing.

The next response relates to her question on the NTP rodent cancer study of 2018.

The first questions my client asked:

The recent NTP rodent cancer data show 'clear evidence' of the carcinogenicity of exposure from microwave radiation. In view of this new data on the effects of non-ionising radiation on our biology, should PHE amend its advice to government and consumers that non-ionising radiation is safe?

The PHE response:

"However, and as NTP explains, these findings cannot be directly applied to humans. This is for two reasons: firstly, the exposure levels and durations were greater than what people may receive from mobile phones; and secondly, because the rats and mice received exposure throughout their whole bodies, which is different from the more localised exposures humans may receive, as from a mobile phone in their pocket or next to their head. PHE considers the results from this study, though interesting, do not alter the balance of evidence in relation to human exposure when using mobile phone technologies. Overall, there is still no convincing scientific evidence that exposures from mobile phones and other radio technologies affect human health at exposure levels below internationally agreed guidelines. However, the results of this study highlight the continuing uncertainties in this complex area and reinforce the importance of following existing precautionary advice, as set out below".

My client's question was very clear and its focus was "*new data on the effects of non-ionising radiation on our biology, should PHE amend its advice to government and consumers that non-ionising radiation is safe***".** In other words, she questioned the status and understanding of the term 'non-ionising' radiation as defined by the ICNIIRP/PHE. They never answered that question and attempted to introduce 'noise' in their response. All of this is very simple. As scientists we conduct experiments to determine cause and effect. We limit as many variables as possible to ensure that the variable under test is the one that causes that effect. If we have two groups, one control and one irradiated with microwave radiation and the irradiated group show **"'clear evidence'"** of carcinogenicity that is cause and effect between exposure of microwave radiation and cancer induction.

The central tenet of the ICNIRP and all the safety advice it gives to governments is based on the hypothesis that RFR is non-ionising. That hypothesis clearly becomes untrue just as soon as cancer induction arises from exposure to microwave radiation. That is called cause and effect regardless of whether the NTP study used a frequency of 2.41 GHz instead of the 2.45 GHz or 12 mW instead of 10 mW exposure levels. The simple fact remains, RFR, radiofrequency radiation at these frequencies has the capability of ionising potential. The induction of various cancers from exposure to microwave radiation prove that point.

Significantly, the NTP show what happens when the biology of rats and mice were exposed to 10 minutes irradiation followed by 10 minutes off for about 9 hours per day. That regime approximates more realistically what is happening in our homes and neighbourhoods this very instant. Regardless of where you are in the world reading this as an Ebook or printed book, how many sources of microwave radiation can you count within a radius of 25 m? Lest we forget, the ICNIRP SAM model of exposure is based on 6 minutes of exposure per day.

The attachment goes on to talk about the Precautionary Principle and once again the PHE are dis-ingenuous in their use of language. They very carefully say, "*PHE (as the former HPA) responded to the 2012 AGNIR report maintaining its advice to follow the ICNIRP guidelines and also maintaining the long-standing precautionary advice in respect of exposures from mobile phones, which can give rise to exposures that approach the international guidelines when they are held to the head to make voice calls.* In

other words, their precautionary stance is to simply follow manufacturer guidelines when using mobile phones next to the head. They also state later on in this document that exposures from Wi-Fi etc are so low that no precautionary advice on exposure is not necessary.

My client's second question was:

"Exposure to microwave radiofrequency radiation was classified as a Class 2B carcinogen by the scientific arm of the World Health Organisation (WHO), the International Agency for Research on Cancer, (IARC) in 2011. Due to several recent scientific studies on observed carcinogenic effects from microwave radiation i.e. NTP and the Ramazzini Institute Italy, plus many others, a report from its Advisory Group has recommended as priority that the status of non-ionising radiation be re-assessed as a Class 1 carcinogen. Will PHE accept that there is sufficient scientific evidence against the safety from microwave radiation for (a) the precautionary Principle to be applied and (b) PHE carry out their own non thermal carcinogenicity studies as soon as possible".

My client was very interested in knowing whether PHE would support the re-classification of its current Class 2B carcinogen moniker to one more appropriate based on the NTP and Ramazzini rodent cancer studies. She also alluded to many historical studies pointing in the same direction, 'exposure to microwave radiation induces cancers'. She understands that the various classifications of substances are meant to alert regulatory bodies of possible associations of harm in the use of novel substances or technologies.
The focus of this question was to also ask the PHE whether they have carried out or intend to carry out research on adverse biological effects in relation to exposure to microwave radiation. None of those questions were directly answered by the PHE so I cannot give their reply.

If we look at the actual tone of the PHE in response to all three questions it is clear that (a) PHE still rely on old antiquated advice via collusion of the ICNIRP/AGNIR conflict of interests panels from 2012 and (b) they have no plans to argue for a re-classification of the Class 2B carcinogen moniker and significantly, have not conducted any research on the relation between exposure to microwave radiation and adverse biological effects. That is why I do not trust governments to watch over me to simply tie my shoelaces and is also the reason why citizens have to find out themselves, in their own way, what is really going on behind the scenes of big government, big telecommunication industries and big standards-settings privately-owned companies such as the ICNIRP.

The final question asked of the PHE related to the rollout of 5G technologies and frequencies:

"Can PHE state whether they are aware of any non-thermal safety studies related to the use and deployment of 5G frequencies i.e. in excess of 5 GHz – 300 GHz on mammalian biology? If no safety studies were carried out prior to the rollout of 5G is it not good sense to follow the Precautionary Principle and allow time for proper safety studies to be conducted before these frequencies are unleashed onto the public"?

In response, the PHE sent a bland general statement on 5G which did not in any way, answer any of the points raised by my client. This non-response to a perfectly valid question from an (extra) ordinary member of the public was to say the least, frustrating. It is at this point that I folded my EMF consultancy because I realised the scale o the con taking place between governments and its citizens.

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